The Veterinary Record.

(Founded by William Hunting, F.R.C.V.S., 1888.)

No. 21. MAY 25, 1929. Vol. 9.

Albuminuria in Sheep.

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In the course of an investigation into the pathological effects of high and excessive protein diets on sheep (1) it was necessary to make a daily clinical examination of the urine of a large number of sheep. These sheep were all on a diet which had an increasing protein content—the diet consisting of normal constituents such as mangolds, barley meal, hay and such concentrates as decorticated cottonseed cake and linseed cake. For the purposes of the experiment the animals were placed in metabolism cages which facilitated the collection of urine uncontaminated by fæces. Daily samples of the urine were examined for albumin qualitatively by means of the Heller and sulphosalicylic acid tests and quantitatively by Esbach's albuminometer.

A detailed account of the clinical analysis is given below:—

Sheep I. Twenty-three days after being placed in the metabolism cage albumin appeared in the urine. The albuminuria steadily increased for five days, when it reached 1 per cent.; it then gradually decreased during the following fortnight, at the end of which time it had disappeared, only to reappear and follow an identically similar course. This periodic appearance and disappearance with the intervening steady rise and fall continued throughout the whole experiment. No change was observed in the reaction of the urine, which was alkaline throughout. At no time in the case of Sheep I was there any trace of sugar or indeed any abnormal constituent other than the albumin. On the 1st April one of the periodic appearances of albumin started and by the 5th April it reached a level of 1·5 per cent., as measured by Esbach's albuminometer, when it was decided to kill the animal and examine the organs histologically for evidence of pathological changes. During the whole course of the experiment the protein content of the diet was gradually increasing.

Sheep II. The clinical examination of the urine of Sheep II was the most interesting of that of all the animals on experiment. During the first fortnight in the cage there was no sign of albuminuria, but after seventeen days albumin was observed. It showed similar fluctuations to that of Sheep I. The second reappearance about a fortnight later was accompanied by a hæmoglobinuria; this also cleared up, but the albuminuria soon restarted. Five days later it had reached 1·3 per cent. and the urine was quite brown owing to the presence of hæmoglobin. Two days later it was chocolate coloured and contained a large amount of albumin and the animal was therefore killed. While, during most of the period of experiment, the reaction of the urine was alkaline, during the latter part it was definitely acid. A sample of urine was obtained within two hours of the sheep being killed, when the amount of albumin was found to be 1·5 per cent. It is interesting to note that in the case of Sheep II the appearance of albumin in the urine was most marked during the time that the protein intake was diminishing, while in the case of Sheep I it was most marked during the time that its protein intake was increasing.

Sheep III. The urine of this sheep showed the same interesting periodic fluctuation in albumin content, which was frequently as high as 1 per cent. to 1·5 per cent. This occurred during the time that the animal increased its protein intake from 100 gms. of protein per day to 400 gms. per day. The animal was killed after being four months on experiment and the usual thorough *post-mortem* examination was made.

Sheep IV. The daily analysis of the urine of Sheep IV showed the same periodic albuminuria as was observed in the preceding animals. At no time during the eight months that Sheep IV was on experiment was the amount very high; indeed, it did not exceed ·9 per cent., and the usual peak was ·5 per cent. Twice during the experiment, however, sugar was detected in the urine, its appearance always coinciding with the maximum output of albumin. No other abnormal constituent of the urine was discernible and the animal was killed.

Sheep V. The urine of Sheep V showed the usual periodic appearance of albumin but, apart from this, no abnormal constituent could be detected. It was killed after being three months on an increasing protein diet and a detailed *post-mortem* examination made for evidence of pathological changes.

Sheep VI. In the case of Sheep VI pure protein was added to the diet in the form of casein in order to see what effects, if any, the more easily digested pure protein would have on the kidneys. The daily clinical examination of the urine resulted as follows:—The reaction was alkaline throughout. After the third day on experiment a slight albuminuria was observed which persisted in varying intensity throughout the whole of the experimental period. During the last fortnight on experiment it remained practically constant at ·8 per cent. Neither sugar nor any other abnormal constituents could be detected and the animal was killed after being three months on experiment.

Macroscopic examination of the organs of these sheep showed no evidence of disease, whilst on microscopical examination the only changes discoverable in the kidneys were those of a slight degeneration of the epithelium of the convoluted tubules of such a nature as to preclude their being regarded as of significance.

In view of the clinical analysis of the urine and the negative pathological changes in the kidney described above, a remarkable occurrence is the periodic nature of the appearance of an albuminuria. Since this was observed in every experimental animal it cannot be regarded

as a chance happening. It could not be correlated with any periodicity in protein consumption or excretion. The daily variation in protein retention could not be proved to have any direct connection with the albuminuria. The onset of albuminuria might occur during a rising or falling nitrogen balance and continue during a positive or negative phase. It was considered possible that the albuminuria might be accounted for by an increased daily output of urine, but on investigation over a period of nine months, in the case of Sheep IV, it was proved that diuresis has no correlation with the periodicity of the albuminuria.

Since from all the data available no evidence could be found that the albuminuria was due to the results of excessive protein feeding, it was thought it might be a normal feature of the sheep. Clinical examination of the urine of twenty-four lambs on a feeding experiment confirmed the fact of the periodic nature of the albuminuria, but since these lambs were also on a high protein diet they could not be used as controls to prove it a normal feature of the sheep. However, this supposition was confirmed by observations on normal sheep fed upon a natural diet.

The urine of two sheep, which were being used for digestibility trials by Woodman, Norman and Bee (2) and being kept under the same conditions in metabolism cages as Sheep I to VI, was examined for a period of over six months. During this time the urine of both these sheep showed an exactly similar periodic appearance of albumin as was observed in those on high protein diets, but to a slightly less extent. Further, these sheep were on entirely different diets at different periods of the observation, but whether the protein content was high or low no correlation could be determined with the amount of albumin in the urine. In addition, the urine of forty-five normal sheep fed on the usual rations at the farm of the Department of Animal Pathology, Cambridge University, was examined for the presence of albumin. Thirty-six of these animals had albumin in their urine in sufficient quantity to be easily detected by any of the tests used.

From these results the presence of a varying amount of albumin in the urine of sheep must be regarded as a normal characteristic. Moreover, it is established that even when the amount is as high as 1·5 per cent. pathological changes in the kidney are not necessarily indicated.

REFERENCES.

(1) Stewart, *Vet. Jour.* (In Press).

(2) Woodman, Norman and Bee, *J. Agric. Sci.*, 1928, 18.

THE ERADICATION OF TUBERCULOSIS.

A Comparison.—In reviewing the work of his Department in the House of Commons in the closing days of the Session, the Minister of Agriculture said that since the Diseases of Animals Act was passed, over three years ago, seven hundred thousand cows and heifers, which were all suspect, and not taken at random, although their milk had been found to be impure, had been examined, and of these 8.4 per cent. were found to be affected with scheduled forms of tuberculosis, but only 1.3 were giving tuberculous milk or suffering from tuberculosis of the udder. He claimed that this result was "very satisfactory," and should give the public ground for increased confidence in the purity of milk supplies at home.

Mortality in Chickens.*

By A. LEVIE, F.R.C.V.S., D.V.S.M. (Vict.), F.R.S.E.
County Veterinary Officer, Derby.

The purpose of this paper is to stimulate interest in poultry disease among the members of this association. It is to the farming community that we look chiefly for the subjects on which to apply our skill—and it is from us that the farming community ask for relief of disease in their stock.

If we could control the diseases of poultry, then the calling of poultry keeping would at once be made more remunerative—to ourselves and our clients. Have we attempted to do so? If not, then let us all start and see what the future may reveal.

The diseases of poultry in relation to the mortality in chickens is too vast a subject for me to deal with in the time at my disposal. With your forbearance, I am going to occupy my time in dealing with the mortality in chickens arising out of a bacterial cause, viz.: the *Bacillus pullorum* of bacillary white diarrhœa (B.W.D.).

This germ-borne disease of the domestic fowl constitutes one of the greatest menaces to the prosperity of the poultry industry; 70 to 80 per cent. often die. Rettger, in 1900, isolated the causative agent of the disease and named the organism *Bacterium pullorum*. It is, however, more frequently spoken of in this country as the *Bacillus pullorum*. The incubation period is given as two to four days. I suggest it is often more. Bacillary white diarrhœa is a widely-spread, acute disease of chicks, with a high mortality. Adult birds which have survived an attack in youth are often carriers of the disease and yet in apparent health. Nevertheless, an adult bird may suffer and die from a chronic type of the disease. Chicks develop the disease in embryonic life or during the first twenty-four hours after hatching. They appear to be immune from an acute attack after the seventh day, unless low in vitality, when the disease may occur in older chicks. The *Bacillus pullorum* lives in the blood-stream of sick chicks and may be recovered from the yolk sac, liver and brain. The disease is, therefore, a septicæmia. The *Bacillus pullorum* varies in size from 0.3 to 2.5 microns, but a stained smear on the slide under the microscope shows odd ones up to four or more microns. It is a gram negative, non-motile rod, occurring singly, and grows readily on agar media after the Douglas formula—incubated at 37°C. in twenty-four hours, stains well in methylene-blue or carbol-fuchsin.

The loss to poultry owners through this disease is reduction in fertility, lowered vitality or death of chicks in the shell, death of young chicks, stunted growth of the chicks surviving, possibly reduction in the number of eggs laid and death of adults. The heaviest loss in hatched chicks is from the first day to the end of the second week.

The disease is widespread wherever poultry farming is practised. Large areas become infected through the distribution of infected eggs, breeding stock and baby chicks off land and housing accommodation which is polluted with the *Bacillus pullorum*.

*Paper presented to the Derbyshire Division, N.V.M.A., at Derby, on 16th April, 1929.

The disease is directly transmitted from parent to offspring through infected ova. What part the male plays in transmitting the disease is as yet controversial. The number of infected eggs varies according to the severity of the infection in the individual birds. The disease is transmitted to healthy chicks through the medium of infected incubators, brooders, soil, water and houses. The germ is discharged in the droppings of infected chicks.

Chicks are especially susceptible during the first forty-eight hours of life, but it is generally considered that they are immune after the fifth day under natural conditions to fatal infection. Chicks having the infection when young and recovering from it retain a focal infection in the ovaries as adults, and are in a position to transmit the disease to the progeny through the medium of the infected yolk sac, the disease being well on the way to development by the time the chick hatches. Hen-hatched and incubator-hatched chicks are equally susceptible to infection. The disease occurs less commonly in chicks hatched under hens however, because, their unit being smaller, there is less risk of infected eggs being included. The large units and the crowding in a fixed place, as found in artificial methods, favour the spread of the disease.

A chick dying from the disease shows, on examination, a yellowish-brown colouration of the liver, congested kidneys and the yolk sac unabsorbed in many instances. Death occurs in the shell or soon after hatching.

The chief symptoms of the disease are as follows: the wings are droopy and the feathers ruffled; the birds chirp unduly and appear drowsy; the appetite is deficient; they huddle together and there is often a frothy, brownish-white discharge from the bowels: the abdomen is bulged posteriorly. The death rate is high in the first fortnight of life. In the adult carrier bird there are no well-marked symptoms. The infection chiefly confines itself to the ovary. Normal ova are round, vary in size from that of a cabbage seed to that of a bagatelle ball, and are attached by a short stem; the contents are liquid. The ovary of carrier birds contains normal and abnormal ova. The latter have a reddish-green tinge. The larger ones are angular or flattened, with long stems. The contents are usually semi-solid; in some they are more liquid than of normal ova. Testicles which contain the organism as a rule present no characteristic abnormality. Rettger isolated the organism from the pericardial sac of males.

Control. Feeding on sour milk, butter milk, or lactic acid in food, while beneficial to the general health of chicks, is of no value as a cure for this disease. All these feeding precautions do is to raise the resistance of the body to an attack by the *Bacterium pullorum*, and as such they are of value as preventive measures.

Success in the elimination of this disease lies in the separation of the re-acting birds from the flock. This may be done by the agglutination test.

The Agglutination Test. This test consists of drawing blood from the wing vein, allowing it to stand until the serum has separated satisfactorily. The serum is then added to the bacillary emulsion, which consists of a strongly turbid suspension of the causative organism in a physiological salt solution. If bacillary white diarrhœa infection is present in the bird the organism, after a period of eighteen to twenty-four hours, will clump and fall to the bottom of the test tube and the liquid will be clear. The routine is as follows: 1 c.c. of the antigen is pipetted into two agglutination tubes for each sample. Then 0.04 c.c. and 0.01 c.c. serum are added with a capillary pipette to each sample, giving a dilution of 1—25 and 1—100 respectively. The tubes are shaken and incubated for about eighteen hours at 37 degrees C. and the results read after standing for thirty minutes after removal from incubator.

Method of collecting blood samples.

1. All birds to be tested should have a numbered leg ring affixed.

2. Birds to be tested should be confined in the house over night and the blood samples collected next morning before feeding.

3. The following equipment is required for collecting samples:—a label, cotton wool, methylated spirit, knife and pencil and sample tubes.

4. One assistant catches the bird and holds it, while the operator plucks feathers from the under side of the wing over the vein which runs from the shoulder to the elbow joint. The operator then rubs the bared area with cotton wool wrung out of methylated spirit and damps the surrounding feathers, so that loose dirt does not fall into the collecting tube. He then cuts the vein with a sharp knife and allows 2 c.c. of the blood to drop directly into the collecting tube. The tube is then corked, the number of the bird written on the tube label and the sample set aside to clot in a cool place. A piece of cotton wool is placed over the wound and the wing pressed against the body for a moment, when the bleeding usually stops. The flock should be tested twice yearly—in summer and autumn for heavy breeds and in the autumn and winter for light breeds. The interval between the two tests should not be less than three months and should not exceed six months. After the flock has passed two consecutive tests the testing is carried out once annually. It is advisable that all birds on the farm over eight months old should be tested, if intended for breeding.

No hens or pullets should be introduced to a flock under test until they have passed two blood tests at an interval of three months.

No hatching eggs or chicks should be introduced unless they are from stock which have passed two blood tests. If bacillary white diarrhœa appears in any brood, all the chicks should be destroyed.

Preventive Treatment. Much can be accomplished by proper care of the breeding birds, proper incubation, care and feeding of the chicks. A chick that lacks constitutional vigour, or that is weak from faulty incubation or improper brooding, falls an easy prey to an infectious organism. On the other hand, a healthy vigorous chick will resist the attacks of such organisms for some time.

Good sanitation throughout all the channels on the poultry farm is important. Disinfect thoroughly all incubators and brooders, before using and between each hatch, by sprayiug with any phenol preparation. The eggs from each pen should be kept separate from the others for at least forty-eight hours. By so doing a dual aim is accomplished, *viz.*: isolation of infected chicks and checking the spread of the disease to healthy chicks. Apply the agglutination test to all hens used for breeding.

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For the first month of the chick's life the drinking water should be medicated as follows:—to every gallon of drinking water add one drachm of tincture of iodine, one drachm carbolic acid and one drachm of powdered catechu. This medicated drinking water should be given all hens during the laying period or, better still, all the year round if the infection is in the flock.

Ref.—Kaupp and Rice.

DISCUSSION.

The PRESIDENT (Major T. V. Bagshaw): You have heard Mr. Levie's most interesting paper, and I have no doubt that those amongst us who are intelligent poultry keepers, as well as those who just meet them in practice, will have a few questions to ask. I have much pleasure in calling on Mr. Bond to open the discussion.

Mr. J. R. BOND, County Agricultural Adviser for Derbyshire: Poultry keeping has, in recent years, become a very important industry in Britain, and fowls are gradually assuming the rank of a principal section of the livestock of a farm.

In Derbyshire the number of fowls on holdings exceeding 1 acre has increased from 494,000 in 1921 to 756,000 in 1927; and we believe that the increase has continued since the last-mentioned year. The increase since 1921 is all the more remarkable when we remember that the 1921 figures represented an increase on the pre-war numbers. The reason for the post-war development of the poultry side of farming lies in the financial results of this department. Poultry products have not enjoyed a unique position in the matter of prices, compared with other forms of farm produce, although on the whole they have sold fairly well. The improved financial attraction of poultry keeping is due less to price considerations than to the increased output per bird which is now being obtained. The old-fashioned farm-yard poultry pay no better to-day than they did before the war; but those kept by progressive farmers—heavy laying strains, fed on balanced rations and properly housed—yield a profit which exceeds that obtainable from other kinds of livestock. In our demonstration with over 100 birds last year, the gross profit per hen was 16s. 7d.

The import of eggs into the United Kingdom to-day exceeds the pre-war figures and, with live and dead poultry imports, amounts to about £20,000,000 worth per annum. The output of eggs and poultry in England and Wales is estimated to amount to £15,000,000 per annum. It has been held that unorganised marketing has hitherto limited the development of egg production at home, graded imported eggs having satisfied the principal demand. But already about 150 packing and grading stations have been established in this country and we are optimistic concerning expansion of the demand for home produced eggs.

Modern poultry keeping tends to develop on intensive lines. Hens lay more eggs in winter when kept entirely indoors and fed scientifically than when allowed free range and more natural conditions. We breed only from heavy layers, and we hatch and rear by artificial methods. Speeding-up of production in this manner has its attendant evils and demands increased vigilance and increased knowledge to prevent the diseases of domestication. One of these diseases is the B.W.D.

It has been suggested that *Bac. pullorum* is the normal inhabitant of the intestines of the chick and that it becomes virulent only when the nutrition and environment of the chick or parents have been unfavourable. There is proof, though, that the presence of the bacillus is not a normal condition; but it is very likely that nutritional conditions do play a part in aggravating and minimising its effects. The present hatching season seems to have been a bad one owing to the prevalance of B.W.D.; and possibly the severe weather, causing shortage of green food and indoor life of the breeding stock, has lowered the vitality of the embryo chicks. On the other hand, it is certainly true that we have heard more of hatching and rearing losses this year, simply because we have ourselves been devoting more attention to the subject and have made it known that we were anxious to tackle problems connected with this branch of livestock.

One of the most important facts which we have recognised during the present season is that the *B. pullorum* is the chief cause of embryonic mortality in incubation. In my first experiment with eggs from reacting birds, 50 per cent. were infertile, and out of twenty fertile eggs only one produced a live-hatched chick. The remainder were dead in the shell, and laboratory examination revealed the *B. pullorum*. In two subsequent experiments, eggs from the same birds were incubated in the same machine, alongside eggs from other sources. The latter hatched normally, while the infected eggs produced embryos that died about the time when they should have emerged from the shell. On a smaller scale, the same experiment was carried out with a broody hen, the results being identical.

To avoid infecting the other eggs, those from the reacting hens were disinfected by immersion in a half per cent. solution of lysol before being placed in the incubator. This treatment does not affect the hatchability of the eggs and has been successfully adopted by certain poultry keepers in this country.

Such experience as the above, without knowledge of B.W.D., often leads to the abandonment of artificial incubation altogether, or to unnecessary changes in equipment. A better result on a subsequent occasion when using different equipment leads to entirely false conclusions. Similarly, in rearing and feeding of chickens the presence or absence of B.W.D. may seriously mislead the poultry keeper who does not recognise the fundamental cause of the ailment. Chicks free from B.W.D. are not difficult to rear through the first fortnight stage, and complicated methods and expensive foods are quite unnecessary, but this does not exclude the supply of the essential elements of nutrition such as vitamins in green food or cod liver oil, animal protein in meat meal or fish meal, and mineral matter, especially calcium in the form of bone meal or calcarious grit.

The B.W.D. disease is badly named, as its name leads people to think that the diarrhœa is the principal feature. As already indicated, it may cause death in unhatched chicks, and the diarrhœa may, in fact, be quite a minor symptom.

The essential facts for the control of the disease are that chicks which survive an outbreak commonly become "carriers" and when they reach breeding age produce eggs containing the virulent germs in question. Such carrier's eggs may foul the nest for other birds and convey the germs to other eggs by contact in the nest or incubator. Presumably the fæces of such hens are a source of infection to other hens in same pen.

Prevention is by hatching only eggs free from B.W.D., in appliances that are also free, and on ground uncontaminated by previously diseased chicks or hens.

The testing of the blood of the breeding stock has been explained in detail. Some carrier hens have the germs in their blood stream and cultures may successfully be obtained direct from the blood. We are anxious to induce poultry breeders to set up breeding pens consisting of birds that have passed the test twice in 3—6 months. In future we shall accept at distributing stations only blood-tested pens.

That, however, is only part of the work of prevention. Disease-free eggs and chicks may become infected *via* lungs or food in various ways above mentioned. Feeding chicks with infertile eggs from untested stock is very risky.

It seems to me that there is good opportunity for veterinary practitioners to help.

Mr. G. HOWE, of Buxton, remarked that the address and the remarks made by Mr. Bond had given him cause for reflection. He could vouch for the fact that the business of poultry keeping had increased enormously of late. Arising out of the remarks regarding diseases of poultry, he thought that a predisposing cause of this was in-breeding practised to reproduce characteristics of the parents, but

which lowered the vitality of the offspring. He could also say from his own observations that there was a good deal of carelessness among poultry keepers with regard to cleanliness.

Mr. W. J. IRONSIDE said that he had a good deal of experience lately with regard to B.W.D. There was no doubt that it was responsible for enormous losses in chicks, and the only way to control it was to eliminate the reactors to the agglutination test. He would recommend that a further test be carried out after a period of one month had elapsed. By this method he had found reactors at the second and third tests. The aim was to remove the reacting bird, but it was not advisable to depend on the application of a single test, as, for some reason not clear at present, birds might possibly react to a second test. Another point Mr. Levie had mentioned was giving medicine in the form of iodine, carbolic acid and catechu. Personally he did not think this was necessary and he had found that chicks from birds free from infection could stand a good deal in the way of mismanagement. He thought blood testing was an opportunity for veterinary surgeons and bacteriologists. It was bound to increase. He had several thousands of samples last summer and, from all accounts, with regard to places where reacting birds had been eliminated, it had been found that losses in chicks had been reduced to a negligible quantity.

Colonel F. LOWE stated that he had been most interested in the paper and discussion. When in Egypt there was an outbreak of this disease in the Delta Provinces, as a result of which the egg market at Cairo, one of the largest in the world, had been practically closed. They had no appliances to deal with the outbreak, but specimens were sent to the Ministry, though he had not heard the result. In two or three years, however, the disease had abated, which was very important, as an enormous number of eggs was exported from Egypt.

Mr. O. V. GUNNING expressed his interest in the demonstration of taking a blood sample. It seemed quite simple, but he would suggest that possibly a hypodermic needle might be used instead of making an incision with a sharp instrument. Arising out of Mr. Levie's address and Mr. Bond's remarks, he would like to ask:—

(1) Whether the disease could be transmitted from an infected egg to a healthy one, and in what way.

(2) The position of the infected egg commercially, and whether its keeping properties were affected.

(3) Whether the disease could not be transmitted by feeding eggs, which might be infected, in a hard-boiled form.

(4) Whether cockerels, reacting to the test, develop a sterility therefrom.

He personally was very pleased to hear about co-operation with the veterinary profession. He thought that the future of the poultry industry lay in methods of prevention of disease and in this they could help with mutual advantage.

Major BAGSHAW wished to thank those who had taken part in the discussion and would like information on the following points himself:—

(1) What was the cost of testing and from where the necessary material could be obtained.

(2) Whether the disease affected ducks and turkeys.

(3) In the event of ground being contaminated, what was the best method of disinfection.

(4) Whether backyard poultry keeping was advisable, and whether poultry keeping on the intensive system was advisable.

(5) What should be done with reactors.

(6) Whether there was a resistant strain of poultry.

THE REPLIES.

Mr. LEVIE in reply, said he thought that there was great scope for veterinary surgeons in the poultry industry. They had heard his colleague Mr. Bond say—from his practical knowledge—that this was a branch which the farming community found remunerative. Forty years ago no veterinary surgeon could have foretold the extent of the practice of veterinary surgeons with such animals as dogs and cats, and it might quite likely be that poultry would become somewhat similar.

Mr. Ironside had raised a somewhat controversial question regarding the length of time between the tests for reacting birds. He (Mr. Levie) would like to say that in his tests he had followed Captain Rice, Head of the Animal Diseases Research Division, Northern Ireland, who recommended that birds should be tested every three months and then one year after. It was understood that there was a considerable amount of this work, but it was pleasing to learn that Mr. Ironside found monthly testing better, which would probably vary individually. In the treatment of bacterial diseases, carbolic acid and iodine had been found most valuable and benefit had been derived in certain instances from the medicine recommended. With regard to Captain Gunning's question concerning the use of a hypodermic needle, the work of collecting blood samples was allocated to the poultry instructor, and after experience it was found that the present means was as satisfactory as any. It appeared that eggs were likely to become infected through contact, but little was known in this connection. Cockerels had been found to react to the test and the organism had been found in the testicle of a cockerel. It was not known, however, whether the disease could be spread this way, and it did not appear that the disease affected the fertilising power of an infected cockerel. With regard to the Chairman's questions, the actual charge was 6d. per blood sample. So far as was known, ducks and turkeys did not have the disease, which should not be confused with coccidiosis, to which they were liable. The best thing appeared to be to fatten off and sell any reactors, as the disease did not appear adversely to affect human beings. He suggested that contaminated ground should be dug over and planted with rape or something that the birds could peck afterwards. The bacillary emulsion could be obtained from the Ministry of Agriculture and Fisheries or from Burroughs Wellcome. He knew of no resistant strain of poultry.

Mr. BOND answered questions arising out of his contribution to the discussion and stated that there was no means of recognising an infected egg commercially. It was not known to be injurious to human beings. With regard to backyard poultry keeping, while he was an advocate of keeping poultry on the intensive system, he did not recommend that breeding should be attempted where there was only restricted space available.

RIDING OF HORSES ON GRASS FOOTPATHS.

The Justices at the Dartford Police Court on the 19th April, 1929, had before them three cases of the riding of horses on grass footpaths.

Each defendant was summoned for riding a horse "upon a certain footpath, etc., contrary to Section 72 of the Highway Act, 1835"—the road in question being the Bexley bye-pass road, and at the place in question there is a roadside verge of about 30 feet. From the kerb of the road there is (*a*) a 12 feet strip of grass, then (*b*) an 8 feet strip of gravelled footpath, and then (*c*) a 10 feet strip of grass to the fence.

The defendants had ridden on the 12 feet strip of grass (*a*) and the police contended that the whole of the verge from the kerb to the hedge was footpath.

The defendants contended that the only portion which could be said to be footpath or causeway by the side of the road, made or set apart for the use or accommodation of foot passengers was the gravel path (*b*).

The police contention involved the position that for a 40 feet road there were two 30 feet footpaths, (*i.e.*, 60 feet of footpath to a 40 feet road).

The Justices dismissed the cases.

The above decisions at the Dartford Police Court confirm the recently-issued announcement of the National Horse Association (the original letter being in the hands of the defendants' solicitors) that they had been informed by the Ministry of Transport, that "All the land between fences acquired for the new roads is dedicated highway, and therefore, the roadside margins are just as free for the use of horsemen as is the like accommodation upon the older roads."

Co-operation.*

By Lieut. Colonel N. S. Mayo, V.O.R.C.

Every Army officer knows that co-operation is essential to the successful conclusion of any military project. It is also essential in the solving of problems of civil life. There appears to be one phase of Army veterinary relations in which the spirit of co-operation is not developed as it should be, and that is in connection with meetings of national, state and local veterinary associations.

It is admitted that because of fundamental conditions governing Army veterinary service it is not practical for army veterinary officers to become members of local veterinary associations, but it is desirable that veterinary officers attend such meetings whenever possible and contribute to the programmes. A veterinary officer attending and assisting at such meetings should be in uniform. The veterinary corps needs publicity. Every veterinary officer by attending and assisting local veterinary associations can be of real service to the veterinary profession and do much to secure needed support for the Army veterinary service. Most veterinarians in civil life are not familiar with the Army veterinary service and its needs. This should be brought to them by Army officers. There is no profession that is in closer touch with the livestock and farming interests of the country than veterinarians and their influence in shaping legislation relating to the livestock industry and the Army veterinary service is important.

In attending state and interstate veterinary associations and looking over association programmes, the absence of Army veterinary officers is painfully apparent. There is not a local or state association but what would gladly place a veterinary officer on their programme and officers will be more than welcome at the meetings.

Because of their isolation and the necessary routine of Army life there is a tendency for an Army veterinary officer to get into a rut. Contact with civil veterinarians at meetings will do much to avoid this.

The veterinary profession has played an important part in making the Army veterinary corps what it is to-day and the profession is proud of the Army service. The Army veterinary service owes much to the civil practitioners and it will need their help in legislative matters and in case of a national emergency. It is therefore essential that Army veterinary officers do all in their power to maintain a close contact with the profession that will be of benefit to the officers, the civil practitioner and the Army veterinary service.

The Editor of the *Bulletin* comments on the above as follows:—

"The general run of veterinarians in practice will be found to be good company and real friends when their acquaintance is made. However, they feel a material reluctance in making themselves known by calling at Army posts, and if contact is to be established between the civil practitioner and the Army veterinarian, with the resultant great benefit that will naturally accrue to both groups, officer personnel must take advantage of every opportunity to meet their professional brothers in civil life.

"Lieut.-Col. Mayo is particularly well qualified to speak on this subject, since he has had extensive experience in the Army and in civil practice. He attends the principal veterinary association meetings throughout the country and is fully conversant with all matters of interest to the profession. His is a dual interest and his remarks on co-operation are fully indorsed by this office."

* Reproduced from U.S.A. Veterinary Corps *Bulletin*, March, 1929. Vol. XXIII, No. iii.

The Fall in Beef Imports.

Sir William S. Haldane on the Home Producers' Opportunity.

New Method required to meet a World Shortage.

Under the heading "Food and the Farmer," Sir William S. Haldane recently contributed to *The Times* a series of important articles in which attention was drawn to "certain ominous conditions which may affect seriously the beef supply of this country before very long"—conditions, in fact, already productive of a fall in imports, to meet which Sir William calls upon home producers to increase their stock and grade up the quality of our beef cattle. The author, to the same end, lays stress upon the necessity for organisation of the home meat trade, and for introducing "system" into the marketing of fat stock.

It is chiefly in respect of a grave prospective reduction in the supplies from the Argentine that the situation assumes a serious aspect. The author says: "Hitherto we have been obtaining about 40 per cent. of our beef consumption from the Argentine. The information coming from that country of late points to substantial reduction in the quantity and quality of what it can now export.

"Last year the number of cattle slaughtered at the Argentine *frigorificos* was 404,000 fewer than in 1927, a reduction of 12½ per cent., and the exports of chilled and frozen beef are reported to have been over two million quarters fewer than in 1927, a reduction of 24 per cent. Most of the reduction is in frozen beef so far, and the published figures indicate that the main decrease has been in the exports to the European Continent, the shrinkage in supplies to Great Britain being only about 18 per cent., according to our trade returns, and thus less impressive than that in other countries. Further, it is noticeable that the returns of Argentine and Uruguayan shipments of quarters of beef since January 1st last, published in *The Times* from week to week, show a reduction of about 6½ per cent., compared with the corresponding period of 1928, and British imports of beef from the Argentine for January and February are down 8 per cent. in weight. The latest report received of slaughterings for export this year shows a reduction of fully 15 per cent. compared with 1928. Thus the shrinkage appears to be continuing, and fairly rapidly.

"For a considerable time the Argentine market reports have been indicating increasing shortage of the class of "chiller" cattle suitable for the export trade to this country, and the latest reports make it clear that the shortage is becoming acute, and may be expected to increase, young cattle of suitable type being apparently difficult to find now. There has been no census of the Argentine cattle population since 1922, but experts believe that a large reduction has taken place since the last official figures of 37 millions, assuming they were accurate at the time. These figures, showing three times the number of cattle we have in Great Britain and Ireland, and two-thirds of the number in the United States, led us as well as the Argentines to believe that that country, with a human population of only 10 millions, contained an almost inexhaustible reservoir of beef from which to supply Great Britain and other importing countries. It is now recognised that the unfortunate meat war, which after two years' struggle ended little more than a year ago, produced a quite misleading impression of potential

Argentine output, for it is clear now that the intense competition among the importing companies, flooding the English market with beef under cost, and incidentally bringing ruin to home producers, drew on Argentine supplies to an excessive extent."

Among " other reasons for the changed position given in Argentine," Sir William quotes " the loss, trouble, and anxiety due to the disclosure of the prevalence of foot-and-mouth disease throughout the country, and the restriction on export trade we have imposed on the Argentine to reduce the risk of transmission of the disease to this country. . . . .

" The information that is now trickling across to us in this country, particularly since this year began, makes it clear that there is serious alarm among those who are specially interested in Argentine beef export, even though we paid last year more in money for the reduced quantity of chilled beef than for the larger imports of 1927. But their concern is almost as much because of the shrinkage in the quality of Argentina's greatest product as of its quantity."

Concerning the beef export position in other countries, Sir William Haldane says, in the course of his second article : " The position in the United States is now widely known as regards shortage of beef supply. It is barely twenty-five years since that country was pouring beef of excellent quality into our markets in copious supply, more than satisfying our needs. Its cattle population has gone down from 68,000,000 in 1920 to 55,000,000 now, beef cattle being fewer than in any year during the last half-century ; and to-day the people of the great Republic, enormously more numerous, are experiencing what is described as a beef famine, their consumption having been reduced over 15 per cent. per head last year compared with two years ago.

" Further reduction is looked for this year, and since 1922 prices have nearly doubled, though they have been taking the whole surplus cattle and beef Canada can give them and importing even from New Zealand, over their tariff barriers. They would have been sweeping in chilled beef from the Argentine, too, but for the terror of foot-and-mouth infection. The changed position in the United States came suddenly two years ago, a shock of surprise to the North American consumers. It is possible that by and by a similar surprise may come to English consumers. . . ."

" If the Argentine fails us how are we to replace its supply ? Australia is likely to prove a broken reed for this purpose, though last year she put forth a great effort to make good the Argentine deficit with frozen beef. Her cattle population has been shrinking during the last seven years. It has gone down 20 per cent. since 1922. The bulk of her beef produce is required now for her increasing population of hard-working and heavy beef-consuming people, and her cattle are not of the quality British consumers prefer. New Zealand concentrates on sheep and dairy produce, and has only a comparatively small beef surplus to export. Her cattle have been going down in number since 1924, and young beef cattle are reported scarce and dear.

" Canada will always have North American markets at her door, with their rapidly increasing demand, such supplies as she has to export being mainly from the Western Provinces. Her cattle population has also been falling and is now lower than for many years. South Africa may be able to do something in the dim and distant future, her cattle steadily growing in numbers, though meanwhile of little use for our beef supply. Southern Rhodesia, however, is grading up increasing herds, and ere long may make us a useful contribution from her 2,000,000 cattle, and have her reward.

" It looks as though we might have to accept such share as can get of the inferior beef Brazil may be able to give from a country of vast area, but with unfavourable and unhealthy conditions, her huge herds being full of the disease that apparently now afflicts the whole of South America, apart from other troubles that affect tropical or semi-tropical countries.

" Viewing the world's numbering of livestock published in the Volume of International Statistics, issued from Rome last autumn, it is impossible for beef-consuming nations to feel much assurance. Some of the European countries are shown to be gradually recovering their cattle population so heavily denuded in the war. But the cattle are mainly of dairy breed in countries which consume veal but very little beef. In all the beef-exporting countries the figures given show a distinctly adverse trend during recent years—Australia and New Zealand, the United States and Canada."

The author strikes a note of alarm at the commencement of his third article, dealing with the home supply.

" The present world position as to cattle numbers and trend of live stock production points to approaching scarcity of beef almost everywhere, and the dependence of this country on overseas supply for 58 per cent. of our present beef consumption makes it a matter of serious moment to our consumers."

While the American people, for example, are living on pork (eating more pork than the other meats put together), in Sir William's opinion neither mutton nor pork can take the place of beef for our industrial classes.

British Farmers and the Increased Demand.

" It may be that we shall have to rely largely on Brazil with its large cattle population for our future beef supply, but if so, the prospect is that we shall fare badly. It would be much better if Australia, despite past discouragement, set to work seriously to meet our overseas beef requirements by grading up her cattle and increasing her herds. It is disappointing to see that last year Australia imported no bulls from the Mother Country for stock improvement. The increase in world sheep stocks may result, before long, in over-production of wool, markets becoming less profitable than to-day, and it may be time now to give more attention to other production.

" For the present our home producers have the best chance of meeting increasing demand for beef and of filling up the gap in Argentine supply apparently within sight if they will set to work to increase stock and grade up the quality of our beef cattle. But there is little indication of preparedness for this. Last year the cattle population of England and Wales fell a quarter of a million, fully 4 per cent. It is the more serious that the drop in heifers in calf was 9·3 per cent. and of cattle under one year 6·5 per cent., all indicating the same decline in cattle production at home as in the Argentine and elsewhere and of deliberate intent. The Irish figures are even worse in respect that they show a decrease in heifers in calf so great as 11·4 per cent. Even in Scotland, where farmers may be farther-seeing, heifers in calf are down about 6 per cent., though younger cattle were considerably up in numbers last year, as is also the case in Ireland. The increase in younger cattle (mainly two-year-olds) reflects the better economic conditions as to cattle prevailing till the Argentine meat war brought ruin to home producers of beef.

" What guidance are our breeders getting and what care is being shown for the future meat supply of our people ? Home beef production is at present in a far from satisfactory state, and in most districts has only continued because it is impossible for agriculture to carry on without it, whatever market conditions may be. The losses from breeding and fattening cattle during the last two or three years have been most discouraging to farmers—much the worst department in their enterprise, according to economic investigations throughout the country. The trend has been from beef to milk, due to the more remunerative results of dairy farming ; but milk demand is now more than met till our people can spend more on that best food of all and bring up British consumption of it nearer that of other countries. The heavy losses to farmers in beef production would seem to be due less to the actual cost of production or the price of the beef to the consumer, than to the wide spread between the two under our system or want of system in marketing fat stock.

" The Argentines have hitherto been under-selling our farmers, while placing on our markets beef of wonderfully

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good quality, but there can be no question that they have been able to do this, not so much through the lower production costs of their cattle, as because of the complete organisation of their marketing, part of which is careful grading of the meat to suit customers' tastes. The American packing houses engaged in this business claim, and offer to prove that, buying and selling direct, they earn their whole expenses and profits from the by-products of the carcasses, and that thus the producer gets the whole selling price of the meat. To effect such economy, of course, it is necessary to concentrate trade sufficiently to justify the plant and enterprise required, but in expert opinion such concentration is quite practicable in this country were there sufficient organising effort.

The Urgent Need.

"If our home meat trade were so organised, there can be little doubt that our producers could earn fair profit, and consumers could be better served with suitably graded meat at moderate cost. Rational marketing is agriculture's most urgent need at the present time in this country, and it is mainly due to the lack of it that English beef production has shrunk as it has during the last few years (14 per cent. since pre-war) and the quality of much of our meat gone down in like manner as profits have. Anyone who knows our cattle markets is well aware of the large proportion of inferior beef cattle we are producing, despite our having the best breeding herds in the world to draw on. The disregard of many of our breeders of commercial cattle is only too patent in the ordinary bull sales throughout the country, where the scrub bull is still being readily bought.

"The problems of world food supplies must always be complex and difficult, and it is to be hoped that the new development in the work of the International Institute of Agriculture at Rome will prove helpful in their solution. They are problems of special importance to a nation like ours, so largely dependent on food imports. At present our home and Empire producers are not getting the guidance so fully and freely offered to the American farmers, though by them less needed. A mass of information is available in this country on the many shelves of the different Government Departments, at the Embassies and elsewhere, which if brought together by one Department, always kept up to-date, and issued regularly in suitable form to reach home and Empire producers, might be of great value in guiding them. For us the Department of Overseas Trade would seem convenient as a reservoir of information on world conditions with which to supply in digested form both our home and Empire producers, the Empire Marketing Board and our agricultural departments co-operating closely."

Recommended Standard for *Brucella abortus* Agglutination Test Certificates in Pacific Coast and Rocky Mountain States.

At a meeting of veterinary officials representing the State Live Stock Sanitary authorities of California, Idaho, Nevada, Oregon, Utah and Washington, held at Oakland, California, on November 22nd, 1928, evidence was presented indicating that a lack of uniformity existed in the conduct of agglutination tests for the official diagnosis of *Brucella abortus* infection in cattle. It was voted to authorise the Chairman, Dr. A. J. Dickman, of Idaho, to appoint a committee to formulate uniform standards for certificates for official tests for the determination of agglutinins in cattle blood, these to serve as a standard for the guidance of officials in the six above-mentioned States until such time as standard methods for the routine testing of cattle for *Brucella abortus* infection have been recognised by the United States Live Stock Sanitary Association or the United States Bureau of Animal Industry.

After conferring with Dr. Jacob Traum, of the University of California, and thoroughly discussing the subject, it was the opinion of the committee that a uniform method of issuing certificates and conducting agglutination tests is desirable in the States represented at the Oakland meeting: first, for the purpose of making it possible for prospective purchasers to select cattle negative to the agglutination test for contagious abortion; and, second, for the information of State live stock sanitary officials at points of destination of such cattle. For this purpose the committee makes the following recommendations:—

Agglutination Test Certificates. Certificates that cattle have been passed as non-reactors to the blood test for *Brucella abortus* infection should be issued by the live stock sanitary official or his duly authorised deputy in the State of origin of such cattle. Such certificate accompanying shipment shall cover only those animals which are negative to the test as outlined in the following paragraphs. A copy of the test chart, as indicated below, shall accompany the certificate.

Test Charts. Test charts shall contain the following information:

First: Satisfactory identification and description of all animals in the herd. For the protection of the veterinarian taking the blood samples, for the purchaser and for the definite information of the live stock sanitary official at point of destination, it is highly desirable that the identification be in the form of numbered clincher ear tags placed in the ears of all animals.

Second: Test charts shall contain a full record of the agglutination test on all of the adult animals in the herd from which the animals in the shipment originated. Such record should show the results of the test of each animal in at least four tubes with dilution of serum to antigen in the following proportions—1 : 25, 1 : 50, 1 : 100, 1 : 200.

Third: On the certificates of cattle from herds in which there are positive reactors, only animals whose serum shows no agglutination or an agglutination titre of less than 1 : 50 shall be included. Animals from an infected herd that show agglutination in a dilution of 1 : 100 are positive reactors, and furthermore, any trace of agglutination in dilutions of 1 : 50 in the blood test of cattle from herds in which there are positive reactors indicates possible initial infection, and in the opinion of the members of this committee should not be included.

Fourth: If it is found that no reactors are present in the entire herd of adult cattle from which the shipment is to be made, the livestock sanitary official is justified in endorsing the test certificate without any reservation. If reactors are found to be present, the endorsement should be supplemented by the statement that the animals come from a herd showing some reactors and should be re-tested in twenty to thirty days.

Preparation of Antigen.

Media. Nutrient agar containing 2 per cent. glycerine with 1 per cent. glucose or liver infusion agar is recommended, having pH 6.8 to 7.2; distributed in Blake bottles and inoculated by pipetting a heavy bacterial suspension in salt solution or inoculated with loop on slants in tubes from one or more stock cultures and incubated at 37° Centigrade for from 48 to 72 hours.

It is extremely important to select strains of known satisfactory agglutinating properties as proved by controls carefully checked by definitely-known negative and positive fresh sera. An exchange of stock cultures suitable for agglutination is recommended between laboratories of different States. It has been observed at the California Station that certain cultures of *Brucella abortus*, which are apparently good agglutinating strains, may quickly change and become unsatisfactory.(1) Checks with positive and negative serums should, therefore, be made every time a fresh batch of antigen is prepared.

A careful examination of each bottle or tube should be made for possible contamination, checked by microscopic examination of smears stained by the Gram method.

The bacterial growth should be washed from the media with a physiological saline solution, which contains 0.5 per cent. phenol or 0.1 per cent. formalin and diluted to the proper density just before using.

For the plate method the procedure recommended by Huddleson and Abell is advised.(2)

Storage of Antigen. Antigen should be stored in concentrated form at temperatures between 35 and 50° F. Antigen over six months old should not be used.

Test Set Up. At least four tubes should be used in 1 : 25, 1 : 50, 1 : 100 and 1: 200 dilutions of serum to antigen. These should be incubated overnight, and, after cooling, read at about 24 and 48 hours, respectively, or, if no incubator is used, the reading may be made on the 48th and 72nd hour.

Recording Results.

\+ Indicates that complete agglutination is present.
± Indicates more sediment than ∓, but still a faint cloudiness in supernatant fluid.
∓ Indicates slight sediment, but supernatant fluid turbid.
— Indicates no evidence of reaction.

The committee favour using the tube method, however, under circumstances where quick reports are needed, the plate method may be substituted for the tube, as described by Huddleson and his co-workers.(3)

J. W. KALKUS, *Chairman.*
EDWARD RECORDS.
C. M. HARING.

(1) TRAUM, J., and B. S. HENRY. Discrepancies in the agglutination test for *Brucella abortus*. *Cornell Veterinarian* (in press).

(2) HUDDLESON, I. F., and ELISABETH ABELL. Rapid Microscopic Agglutination for the serum diagnosis of Bang's Abortion Disease. Inf. Dis. 42 : 242-247, 1928.

(3) HUDDLESON, I. F., and E. R. CARLSON. A Rapid Method for performing the Agglutination Test in the serum diagnosis of Bang's Abortion Disease in Cattle. *Jour. Amer. Vet. Med. Assn.*, n.s., 23 : 229-233. 1926.

VETERINARY THANKSGIVING FUND.

The following circular has been issued to the profession this week by the Secretaries of the two Veterinary Benevolent Funds. We can think of no better occasion for an expression of the loyalty of the profession than the present, when His Majesty the King has returned home fully recovered after a long and tedious illness, nor of a better means of expressing that loyalty than the one proposed. We hope the appeal will receive the hearty and generous support of the profession :—

"We have the greatest possible pleasure in announcing that a generous member of the Veterinary Profession, who for the present desires to remain anonymous, has offered the sum of £100 to be applied to benevolent purposes within the profession, if an additional sum of £100 is subscribed before June 30th next.

"This kind offer has been gladly accepted and with the approval of the donor it has been decided to open a VETERINARY THANKSGIVING FUND, to celebrate the return to health of our Gracious Majesty the King after his long and very serious illness.

"We feel that we can confidently count upon the support of all members of the profession in raising such a fund, for we are certain that there can be no more fitting method, or one that would appeal more to His Majesty himself, than a fund to help those who cannot help themselves. There is reason to believe moreover that should a larger sum than the £100 be realised, our anonymous donor would be desirous of further increasing his contribution ; but we also hope that some other member may be found to emulate his excellent example.

"Subscriptions to any amount may be sent to either of the undersigned, and we shall be glad to publish an audited statement when the fund is closed.

"We are,
Yours sincerely,
J. W. BRITTLEBANK,
FRED BULLOCK."

Addresses to which subscriptions may be sent :—

Lt.-Col. J. W. Brittlebank, C.M.G., M.R.C.V.S., D.V.S.M. (Vict.), President of the Victoria Veterinary Benevolent Fund, Hon. Secretary of the National Veterinary Benevolent and Mutual Defence Society, Guildhall Chambers, 38 & 40 Lloyd Street, Manchester.

Fred Bullock, LL.D., F.C.I.S., Secretary of the Victoria Veterinary Benevolent Fund, 10 Red Lion Square, London, W.C.1.

Royal Army Veterinary Corps Journal.

The preliminary notice issued in connection with the pending publication of the *Royal Army Veterinary Corps Journal*, states :—

"With a view to filling a long-felt want, and also to bring the Royal Army Veterinary Corps into line with other Corps and Regiments of the Army, it has been decided to launch a *Royal Army Veterinary Corps Journal*.

"The publication will consist of a forty-page Journal, and will be printed quarterly by Messrs. Gale and Polden, Ltd., Aldershot, under the auspices of the Royal Army Veterinary Corps Club.

"The first number will be published on or about November 1st, 1929. A Committee of Management, consisting of the following, has been approved :—

Col. W. A. Pallin, C.B.E., D.S.O., F.R.C.V.S. *Chairman*), Lieut.-Col. H. S. Mosely, D.S.O., Bt. Lieut.-Col. H. E. Gibbs, D.S.O., Bt. Lieut.-Col. W. H. Walker, D.S.O., O.B.E., Major H. J. Holness, D.S.O., Major A. A. Pryer, D.S.O. (*Editor*), Major R. M. Bamford, O.B.E., and Major G. E. Oxspring.

"It is hoped to supplement the above by several home and foreign correspondents.

"The scope and subject matter of the Journal will embrace :—

1. An occasional Editorial.
2. Original scientific articles on veterinary and military topics.
3. Clinical articles.
4. Reviews and extracts.
5. Articles on travel and life in the lesser known stations abroad.
6. Campaign and Service experiences.
7. Reports of the Aldershot Army Veterinary Association Meetings.
8. Depôt notes.
9. Notes from the Army Veterinary Schools at home and abroad.
10. Articles on Empire Development and the Overseas Settlement of Officers and Other Ranks on completion of their Colour Service.
11. Gazettes and Movements of Officers and Other Ranks.
12. Promotions, Postings and Discharges of Other Ranks.
13. Indian Army Veterinary Corps notes.
14. Social items.
15. News of Old Comrades.
16. Athletic news.
17. Hunting, racing and polo, as far as it affects the Corps.
18. Births, marriages and deaths.
19. Such other matter as the Committee consider it desirable to publish.

"It is hoped to make the publication popular with all ranks, and at the same time to form a connecting link for exchange of thought and ideas between all those who are serving, or have served, in the Army Veterinary Services.

"The price has been fixed at 10s. 6d. per annum, or 3s. per single copy post free to any part of the world.

"It is hoped that all who have the interests of the Corps at heart will become regular subscribers and also assist by supplying the Editor with articles, news, etc., which come within the scope of the publication.

"Finally, it will be realised that in a small Corps like ours, unless whole-hearted support is given, the venture cannot succeed."

ROYAL ARMY VETERINARY CORPS CLUB.

We have seen a copy of the Royal Army Veterinary Corps Club Booklet, which shows that the R.A.V.C. Club is a very active concern in a small community.

The rules of the Club and its affiliated associations, *viz.*, the Point to Point Association and the Golfing Society, the Dinner and other Corps institutions (including the

(*Continued at foot of first column next page.*)

The Veterinary Record.

25th May, 1929.

THE R.A.V.C. JOURNAL.

We are pleased to see that the Royal Army Veterinary Corps has decided to follow the rule of other branches of the Army in maintaining a Journal of its own. It seems strange that this was not undertaken long ago, for the service of the Army officer in many lands presents unusual opportunities for items of valuable scientific interest, and which, without an easy inducement for recording the same, are apt to be lost to Veterinary Science altogether. A very useful lead in this respect has been shown by the Veterinary Corps of the United States Army, the *Veterinary Bulletin* of that Corps, published monthly, being of real merit, and well supported. However, now that the journal, in a suitable quarterly form, is being launched, we wish it every success, and it will become the pleasure of the N.V.M.A. and its official organ, the *Veterinary Record*, to help the Army periodical in every way possible.

The strong Committee of Management foreshadows a successful inception. The Chairman, Colonel W. A. Pallin, and the Editor, Major A. A. Player, are past masters in the art of translating ideas and facts into words, and all the other members of the Committee are experienced in administration and in practical matters relating to Army Veterinary Service. There ought to be no dearth of meritable scientific material for issue, and the Corps news of sport and social events will provide an added interest. It only remains for past and present officers of the Corps itself to give the journal a good backing, as no doubt they will, and we trust, too, that it may prove a solid link in that chain of co-operation between the civil and military services of the profession of which mention is made in Lieut.-Col. Nelson Mayo's article reproduced in this week's issue from the *Veterinary Bulletin* of the U.S. Army.

(*Continued from previous page*)

Aldershot Army Veterinary Association, Old Comrades Association, and R.A.V.C. Benevolent Fund) are all of interest to many members of the profession, in that Territorial Officers, serving and retired, and those who served as Temporary Officers, are welcomed to the Annual Dinner and to compete in the annual Point-to Point and Golfing Society meetings, all of which are duly made known in the *Veterinary Record*.

The existence of the Benevolent Fund may not be known generally among members of the profession. This Fund exists primarily for the alleviation of cases of distress among Ex-R.A.V.C. men and their families, Regular, Territorial and temporarily enlisted; other cases of necessity are eligible for consideration.

As there were some 41,000 men serving with the Corps during the Great War, it is quite feasible that deserving cases occur and are not helped by the Fund, through ignorance of its existence. Cases are normally submitted through the British Legion or other recognised Society.

The address of the Honorary Secretary is, A.V.D, War Office, London, S.W.1.

CLINICAL AND CASE REPORTS.

"Siamese Twin" Calves.

By W. J. WAGSTAFFE, M.R.C.V.S., Macclesfield.

I was very interested in the illustration of an abnormal fœtus, by Mr. W. T. Olver, M.R.C.V.S., Tamworth, and now offer you for publication photo of "Siamese twin" calves. In an experience of forty years' practice this is quite the most remarkable monstrosity with which I have met. I was requested to attend the mother—a well-bred Shorthorn cow—at her second calving, and after a somewhat prolonged examination decided that I could not deliver. The presentation was the one hybrid hind leg, by means of which the calf is suspended. This is bifurcated from the fetlock. I had the animal slaughtered without any attempt to deliver and she made a £20 body of beef. The weight of the monstrosity was about 150lbs.

Rhododendron Poisoning.

A correspondent forwards us the Arbiter's proposed findings in what he describes as "an unique case of Rhododendron poisoning in which the sheep died for over a month after eating of the shrubs." We give the following points from the case, in which it was alleged that sheep were poisoned through eating rhododendrons growing on the course of the Gourock Golf Club.

Certain of the findings were:—

That on three successive days, *viz.*, 6th, 7th and 8th March, 1928, the Second Party's employees left the gate open or off its hinges in breach of the understanding between the parties, and that as a result of this fault on the part of the Second Party's employees, certain of the First Party's sheep had on the said dates access to the

rhododendrons on the triangular piece of ground; that ten of the First Party's sheep died from poisoning as a result of eating rhododendron leaves on these occasions; that the Second Party are liable to the First Party in the sum of £34 17s. 6d., being the value of the sheep; that the deaths of the other sheep, in respect of which a claim is made, were not due to the sheep having access to the rhododendron plants on the above occasions, and were not due to any fault of the Second Party, and that the Second Party are not liable therefor.

The Arbiter, in his Note, says:—I have found the case a difficult and complicated one, partly on account of the inevitably unsatisfactory nature and extent of the evidence and partly on account of the conflict of opinion as between skilled witnesses.

It was admitted that the gate was left open by the Club's employees on three successive days from 6th to 8th March. I think that this amounts to negligence on the part of the Club's employees, for whom the Club was responsible, and that the Golf Club must be held liable for the death of any sheep which were poisoned through eating rhododendrons to which they got access in this way.

There was conflicting evidence with regard to the cause of death of the sheep.

Mr. Pottie, the veterinary surgeon, who actually treated the animals and conducted *post-mortem* examinations of certain of those which died, was definitely of the opinion that all the sheep, in respect of which Mr. Anderson claims, died as a result of rhododendron poisoning and that death might result a considerable time after the poisonous matter was taken into the stomach. Mr. Pottie claimed to have had considerable practical experience of such poisoning, and his opinion was supported by Professor Weir, the skilled witness for the First Party. Professor Robb, the expert for the Second Party, agreed that certain symptoms coincided with those of rhododendron poisoning, but differed with regard to the presence of other symptoms. He also pointed out that there is no recorded case of animals suffering from such poisoning lingering for more than a few days without either dying or recovering.

It was stated by Mr. Pottie, and corroborated by other witnesses, that the symptoms in the case of all the sick animals were the same. Further, rhododendron leaves were found in the stomachs of all the animals in which *post-mortems* were performed. It was argued for the Second Party that no finding as to cause of death could be made except as regards the sheep which were actually examined after death, but in view of the evidence, I feel justified in finding that rhododendron poisoning was the cause of death in all cases.

I am, on the other hand, unable to go beyond the fact that the duration of illness in all previously recorded cases was short. I have therefore come to the conclusion that sheep which died more than ten days after 8th March did not die as a result of eating rhododendron leaves on or before that date, but must have had access to the bushes at a later date owing to the state of disrepair of the fence. For these the tenant has no remedy against the Golf Club as the upkeep of the fence was his duty.

I therefore propose to find that the Second Party are liable to the First Party in the value of nine Sutherland Cheviot Ewes and one Blackfaced Ewe which died before 18th March, but that they have no liability in respect of sheep which died after that date.

Iodine and Temporary Sterility.

In a recent issue of the *Australian Veterinary Journal*, G. FETHERS, B.V.Sc., of Victoria, states:—

"Two Jersey cows and a Jersey bull were reported to have been running together for nearly twelve months and the cows were not in calf. The owner stated that he had never seen either of the cows in œstrum, nor had the bull shown any mating propensities. The class of country involved was heavily timbered hills with poor, sparse pasture. A certain amount of top-dressing with superphosphate had been applied from time to time, and rock salt was available. The extravagant dose of five grains of potassium iodide twice daily per animal was given in solution in the feed. Three weeks later the younger cow came in œstrum and was duly served. Six weeks later the older cow came on and similarly excited the bull. Both cows have proved to be in calf to the single mating."

REPORT.

Annual Report of the Punjab Veterinary College, Civil Veterinary Department, Punjab, and the Government Cattle Farm, Hissar, for the year 1927-28.

This comprehensive report of the veterinary activities of the civil administration of the Punjab provides a very interesting account of work and progress in what has probably always been the most advanced Province in India in veterinary work. Separate reports of the Principal of the Punjab Veterinary College, the Chief Superintendent, Civil Veterinary Department, the Superintendent of the Government Cattle Farm and the Live Stock Expert are included, and the report contains some interesting photographs of stock. This year the review of the Director of Agriculture, a redundant feature of previous reports, has been eliminated. The Government review realises very fully the scope of the department and recognises that, in spite of acute shortage of staff, much has been accomplished in the way of development and expansion. The work of the officers is duly appreciated and that of Mr. Quirke, the Chief Superintendent, is specifically mentioned. Live stock improvement, which in the Punjab is in the hands of the Veterinary Department, has received prominent attention, but it is a matter for regret that the services of a whole-time Live Stock Officer had not been obtained, and that Mr. Branford had to combine the duties with that of Superintendent of the Cattle Farm. The Ministry of Agriculture records with regret that Mr. Branford has now retired from the service and testifies to his very efficient work in the past as an expert in cattle breeding and agricultural methods. It is clear from the report that, as in other Provinces in India, there is a great need for well-qualified officers to guide the activities of a rapidly expanding department and that there is danger in delay if sound development is to be maintained.

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The Punjab Veterinary College is recognised to be one of the finest institutions of its kind, but it is unable to meet the increasing demand for qualified students. The educational course provided at this College is of high standard, and it has been found that matriculates of the Punjab University are on the whole unable to cope with the course of study demanded. Failure to pass the examinations in disproportionate numbers has resulted. It has been decided therefore to raise the standard of admission to the Intermediate qualification in future. This recognition of the value of sound veterinary education will raise the status of the profession in India, and may be regarded as a milestone of progress. The fact that the average daily attendance at the hospital attached to the College has risen to 133 is worthy of notice. An X-ray apparatus was installed during the year and has already proved to be valuable. Research and experimental work of value was carried out and anti-rabic treatment for dogs continued. Work in connection with surra and other diseases was conducted at the branch Laboratory at Sohawa.

The district officers were very active during the year, and the directing staff, which is recognised by the Ministry of Agriculture to be insufficient, had a heavy year of work. The subordinate staff consisted of 344 qualified men. They visited 34,084 villages, treated 220,039 animals and performed 143,322 castrations. Inoculations and vaccinations to the number of 309,875, were carried out during the year. In addition, 241 dispensaries were maintained, in which 792,149 cases were treated. Work in connection with breeding operations (bovines, equines, goats and sheep) is also a feature of the report. There were 732 additions to the number of stud bulls at work during the year and 343 castings, bringing the total up to 2,870. The above figures are quoted to show to some extent the development that has taken place since the Department was constituted on its present basis in 1901. Before that year, the Department was mainly concerned with horse breeding operations and other activities were practically negligible.

The work at the Hissar Cattle Farm was recognised by the Ministry of Agriculture as successful and efficient. Efforts were made to improve the milking qualities of the farm herd, and fodder cultivation received exemplary attention. The Farm carried 6,689 head of stock valued at over Rs. 700,000. Stud bulls numbering 439 were issued and many applications had to be refused for stud bulls and cows. Fodder to the estimated value of Rs. 123,768 was produced.

The account of cattle breeding operations in other parts of the Province provides interesting reading in the report. There are seven cattle farms occupied on special terms by private persons under the supervision of Government, and other Government farms are projected. Grants are made by Government towards a scheme for cattle breeding in four districts which demand a special breed indigenous to the tract, and other schemes of similar nature are contemplated.

A reduction in horse breeding operations is indicated in the report. Goat and sheep breeding receives attention, and further development in this direction is contemplated.

From The Veterinarian, June, 1828.

"The Veterinarian," June, 1828.

"*Licet omnibus, licet etiam mihi, dignitatem artis veterinariæ tueri*"—Cicero.

Many of our readers have, doubtless, received a circular from a small but respectable body of veterinary surgeons, appointing a meeting of the profession, on the 10th inst. to establish a veterinary medical society, and to take into consideration the principles on which it should be founded, and the laws by which it should be governed.

The object proposed is most important in the present state of our art. Veterinary periodical publications afford a proper medium for the accumulation of discoveries and facts, but their limited number of pages, and the multitude of subjects which they embrace, will not admit of the full and satisfactory discussion of many interesting questions.

Veterinary science is yet in its infancy. Its principles are scarcely understood, and nothing can be so dissimilar as the practice of different surgeons on the same case. An ingenious essay may correct some false principle or mal-practice; but the essay itself may not be free from error. It contains the opinions, and possibly, the fallacious theory of an individual. Some truth may be diffused, but false reasoning and practice may occasionally be disseminated.

In a medical society every opinion and statement is brought to the test of argument. The wheat is separated from the chaff. That alone which is of sterling value is retained, and the remnant of antiquated prejudice, or the suggestions of inexperience are rejected: and when, at the close of the discussion, the veterinary periodical communicates to the public the decision of an assembly, guided by the love of truth, and fitted by their habits and pursuits to decide justly, the advantage that will accrue to us in our present state of knowledge can scarcely be calculated. We would, therefore entreat every veterinarian to take the matter into his serious consideration, and, even at some inconvenience, attend the proposed meeting.

Veterinary practitioners should be brought more together. In the present state of our art, doubtful of the soundness of some of our principles, and feeling, if we would honestly confess the truth, that many important points of practice are yet enveloped in mystery, we carry a bold face to the world, but we are afraid and jealous of each other, and our professional intercourse is occasionally characterised by a reserve, and selfishness, and illiberality, perhaps something even worse than these, and which reflect on us no credit.

When we have been accustomed to meet together, and to unite in the work of mutual improvement, we shall have a more kindly feeling towards each other, and be compelled, as well as disposed, to act with candour and with honour.

We shall likewise measure each other's strength. We shall find out of what our profession is composed. We shall discover the peculiarities of each other's tact and skill. We shall know where to have recourse in cases of perplexity; and we shall know where to look for the competent instructor, when advanced age or premature death may have taken from us the present heads of our profession. Some of us, perhaps, may have been undervalued, unknown. Others may have held their heads a vast deal too high. A society like this will place each man on his proper level, and the art and the public will reap the benefit.

The object of the society is well stated: "the advancement and diffusion of veterinary knowledge," and of this, we trust, the members will never lose sight. Their meetings ought never to be the arena on which angry and malicious spirits contend. The debates of the society should never be perverted to the gratification of secret pique or dastardly revenge. No personal invective, no attack on private feelings, should be permittted to destroy its respectability, pleasure, and utility. The

free, fair, full, candid, friendly discussion of subjects "connected with our practice" will sufficiently occupy us, and will alone "essentially and rapidly promote the advancement of veterinary science."

The description of its proposed members is sufficiently comprehensive: "all persons engaged in the study or practice of veterinary medicine"; the student zealous and theoretical, the practitioner experienced and cautious.

The first meeting, we understand, is to be confined to veterinary surgeons, or those who, having been educated at the veterinary college, are now in actual practice. For them the society is principally intended; by them it must be chiefly supported, and by them alone can all its advantages to the profession and the public be secured. When it is fairly established it will be thrown open to "all persons engaged in the study and practice of veterinary medicine."

One object, *viz.*, the possible (we hope the probable) commencement of a most important publication, a collection of scientific and well-digested papers, under the title of "Veterinary Transactions, etc.," has our most cordial approval. We were taught to look for these "Transactions" elsewhere. We ought to have had them. We must now endeavour to produce them ourselves, and perhaps we may allure those whose works should have annually stood on record, to furnish us with a part, and the most important part, of these volumes.

We do hope that, at no distant period, the veterinary society will rank among its members every zealous and scientific practitioner. If the love of truth, and the determination to vindicate the dignity of the veterinary profession, uncontaminated by any sinister purpose or party feeling, influence and govern the proceedings and discussions of the society, we are assured that "the advancement of veterinary science will be essentially and rapidly promoted."

It being determined that a copy of the proposed laws and regulations should, if possible, reach every veterinary surgeon, we are desired to state that, if any gentleman has been unintentionally omitted, and will address a line (post paid) to Mr. Youatt, 3 Nassau Street, Middlesex Hospital (the Secretary *pro. temp.*) it will be immediately forwarded to him; and any suggestions as to the better accomplishment of the intended purpose will be thankfully received, and laid before the meeting.

ABSTRACT.

[Variations in the Blood Cells and Coagulation Time of Ewes following Normal Parturition. (HARE, TOM and GLYNN, E. E.—*Proc. R.S.M.* 1928-29. Page 741.)]

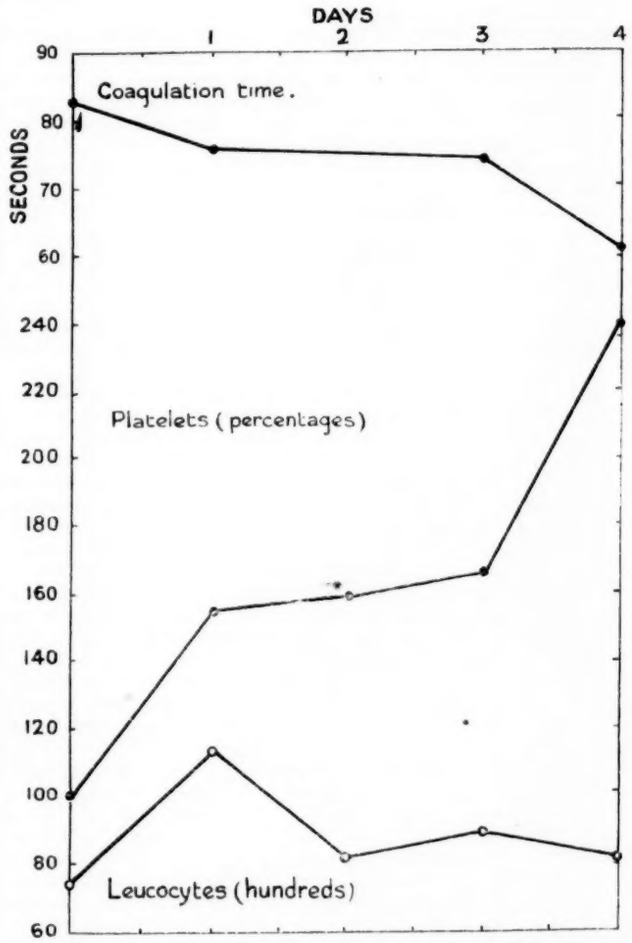
In the course of our investigations into the etiology of lamb dysentery, which bears many resemblances to melæna neonatorum of human babies, Glynn and I have examined the blood of a number of ewes and of their lambs (1). The major part of these observations were not published in our reports of 1927 and 1928 as they did not throw any light on the main problem of pathogenesis. Recently my old colleague, Dr. Howel Evans, suggested that our figures for healthy ewes might be examined from the point of view of the problem which he has been pursuing for several years past. Our figures are presented in the form published by Dawbarn, Earlam and Howel Evans (1928), (2) and the comparison between the human and animal readings is made all the more striking from the fact that we had adopted the technique described by these authors.

Our observations bearing upon the problem before this meeting were confined to eleven healthy ewes. The initial counts were made within five to fifteen days before parturition, which in all cases was normal and unassisted. Only one post-partum count was made in each case; but allowing for this fact and the small number of cases examined, the mean of the counts agree with the findings of Howel Evans and his fellow-workers, *e.g.*:—

TABLE showing the variations in the red cells, leucocytes, platelets, and coagulation time of eleven healthy ewes following normal parturition. The first figure represents platelets in thousands, the second figure red cells in thousands, the third figure the absolute white count, and the fourth figure coagulation time in seconds. The figures in brackets denote percentages calculated from the first observation (100 per cent.)*

	Before parturition.	After parturition. First day.	Second day.	Third day.	Fourth day.
Mean platelets	432	611 (154)	1,444 (157)	688 (165)	717 (236)
Mean red blood-cells	9,185	9,640	10,360	10,430	10,520
Mean white blood-cells	7,500	11,400	8,100	8,900	8,100
Mean coagulation time	83	76	—	74	61

Following parturition, the ewes' platelets rise while the coagulation time shortens. The white cells rise within twenty-four hours (neutrophil leucocytes) and thereafter fall to normal limits (see fig.). The red cell count remains stable.



Showing the variation in the leucocytes, platelets, and coagulation-time of eleven healthy ewes following normal parturition.

REFERENCES.

(1) HARE, TOM, and GLYNN, E. E., *Journ. Path. and Bact.*, 1927, xxx, 473, and *Veterinary Record*, 1928, viii, n.s., 679. (2) DAWBARN, R. Y., EARLAM, F., and HOWEL EVANS, W., *Journ. Path. and Bact.*, 1928, xxxi, 833.

*Original table has been abridged to show the mean counts only.

Conference on Animal Diseases at Harper Adams Horticultural College, Newport, Salop.

An important conference on animal diseases was held at the Harper Adams Agricultural College on April 9th, 1929, and was attended by a large body of agriculturists. Addresses were given by Professor W. A. Pool, on Contagious Abortion, by Dr. F. C. Minett on Bovine Mastitis and by Professor S. H. Gaiger on Tuberculosis.

The conference was convened by Dr. Charles Crowther, Principal of the College, in order to afford farmers and others the opportunity of discussing some of the serious disease problems with which this country is faced. Before the meeting those present were enabled to inspect the famous experimental herd of British Friesians under the care of Mr. R. Boutflour, M.Sc.

Dr. CROWTHER explained that the conference was in the nature of an experiment. They had had several conferences on arable farming, and now he felt that they might perform a useful service to farmers by organising a conference on some questions relating to cattle. To his own mind, far and away the most important problem in the raising of stock was the problem of disease. If they could eliminate disease it would go a long way towards solving the problems of the stock farmer. Unfortunately they were still a long way from that happy condition. Modern farmers would always want to feel that they had kept abreast of the times in regard to the prevention of these diseases which caused so much trouble and loss. They might easily have devoted the entire conference to any one of the three diseases they would discuss that day, but he had felt it would be of more real value to farmers to learn something of all three diseases—contagious abortion, mastitis and tuberculosis. Each of the speakers that afternoon was an authority on his subject, able to place before the audience the very latest information available.

CONTAGIOUS ABORTION.

Professor W. A. POOL, Director of the Moredun Institute, Edinburgh, gave the first paper, which dealt with contagious abortion. After speaking of the early history of the disease and of the discovery of the causal organism in 1896 by Bang and Stribolt, Professor Pool pointed out that the disease had a world-wide distribution, and was probably the greatest plague of cattle in European countries at the present time. In the British Isles it existed in the vast majority of herds and even in the tropics in some instances it was as great a cause of loss to the livestock industry as some of the tropical diseases. Until fairly recently the bacillus was believed to be incapable of infecting human beings; during the last few years, however, evidence had been accumulating that on occasion it produced quite a serious type of fever in human beings. This whole matter was at present *sub judice*.

There was strong reason to believe that complications were of frequent occurrence in infections with *B. abortus*. Sterility was one of the big scourges of cattle, and while there was wide divergence of opinion as to the causes of sterility, the majority of pathologists were of the opinion that it was largely connected with the incidence of this germ. Sterility was probably due to many causes. One large group would probably be due to the contaminating germs just mentioned. Physiological causes might be responsible for other groups, and deficiency of a particular vitamin was another cause. The cow was the great producer of the abortion bacillus. Although *B. abortus* chiefly multiplied in the infected envelopes of the unborn calf, it was now well known that the organisms are also excreted in the milk, so that for this reason also infected animals were dangerous. At the same time they were a danger to themselves, because at each pregnancy the bacilli in the udder migrated to the womb. Milk was not usually available in quantity in circumstances in which adult cattle obtain access to it. When spilt on the ground, etc., it could be, however, a source of infection, but milk was not considered to be an important agent.

The rôle of the bull in spreading the disease had been the subject of great controversy, and it must be admitted that it could not produce more than a small fraction of the infective material produced by the cow. The risks from the bull could be diminished considerably on every farm if certain precautions were taken. The rôle of the calf was not great. The bacilli were present at birth in the bodies of calves of infected cows, and they took infected milk into their systems, but immature bovine stock appeared to eliminate the bacilli from their bodies relatively quickly.

In speaking of methods of diagnosis, Professor Pool said that any successful method of eradication must depend upon the constant and expert application of the agglutination test and upon close collaboration between the owner, the veterinary surgeon and the laboratory carrying out the test. One objection which was sometimes at the back of stockowner's minds in relation to the test, was the fact that blood had to be taken from each animal at intervals by a veterinary surgeon and be sent to a laboratory to be dealt with. There appeared to be an idea that some simple test was required which could be carried out on the spot with no trouble or expense. The problem was too intricate for the stockowner to carry it out himself. Even if a very simple test were available, it would be likely to be so misused by an important proportion of stockowners as to lead to disappointment at the results obtained.

It might be regarded as a safeguard that the test required the co-operation of the stockowner, the veterinary surgeon and the laboratory, because the technical knowledge required was then more easily available. While a properly-trained man who was constantly doing the work, was able to carry it out with accuracy and speed, it could not as efficiently be carried out by anyone who only dealt with it at intervals.

A more difficult question still than the housing accommodation was frequently the accommodation on pastures. The infected animal was dangerous to another animal at pasture.

Treatment with living vaccine when properly used had generally been found to be fairly efficient in that it had resulted in the birth of healthy calves. Apart from such measures, there was no doubt that a lot could be done to minimise the amount of infection in the herd. Maternity stalls were to be recommended and cows should be kept in them for a week or two after aborting or calving. If the maternity stall system was adopted, great care must be taken that it was efficiently disinfected after each cow had left. There was no doubt that the industry as a whole could do a great deal more towards eradicating the disease if it were sufficiently acquainted with the facts.

The following were the advantages to be obtained from the elimination of *B. abortus* from a herd:—

1. Abortions would be eliminated.
2. The birth-rate would rise.
3. Milk production would rise.
4. Sterility would be lessened.
5. Miscellaneous types of disease brought on from the lowering of vitality engendered by abortion disease, would be diminished.
6. The milk of abortion-free herds should have a higher value for human consumption.
7. The stock from abortion-free herds should have a higher value.

TUBERCULOSIS.

Professor GAIGER, of Liverpool University, dealt at length with the serious nature of the tuberculosis problem, remarking on how little prominence this disease received in the press, and how little attention it appeared to receive from the general public. He spoke of the public health aspect of tuberculosis, mentioning the numbers of children who annually died or are left as cripples from drinking tuberculous milk, and stated that his own children had never tasted a drop of unboiled milk nor would he allow them to have any under the age of sixteen or so.

He asked what the percentage of tuberculous animals in a herd mattered, whether 30 % or 100 %, so long as the milk of *one* cow by mixing could infect hundreds of gallons of milk daily.

He stated that " the local authority for the County of Chester during a period of 28 months had about 4,000 bovines notified, mainly females of course, under the Tuberculosis Order. One hundred and fifty-one of this number which had been reported as diseased by this local authority's veterinary inspector actually died before slaughter could be carried out by the local authority, and thirty-five more were slaughtered by the owners on their own account after the animals were reported. And yet we find in another county one veterinary inspector for the 3,000 or more farms which the county contains, and that he has to rely on the owners to report suspicious cases of tuberculosis because he cannot himself carry out such an enormous amount of work. There are other counties which have not seen as yet the necessity of appointing wholetime veterinary officers."

He then said that he did not blame the farmer more than other people, because the farmer often did not know that he was selling tuberculous milk. " Many do not know how to detect slight or even severe tuberculous udder affection, and without training in veterinary pathology cannot be blamed for not knowing. Nor can they appreciate that cows without udder infection can be a source of danger. I have even known of medical men who have maintained that tuberculous cows' milk immunised children against human tuberculosis, and was to be ignored or even recommended on that account, but ignorance of that kind can only be pitied."

" Tuberculous cattle, unless they are clinically affected, apparently do not matter so much as hygienic premises and cubic air space—a most dangerous policy with such a serious and widespread scourge. The authorities, of course, have never claimed that the Tuberculosis Order is an eradication measure. It can, as it stands, never be more than palliative. Under this Order in 1926 one animal was taken and slaughtered out of every 400 of the total bovine population of England and Wales. In Cheshire the proportion was about one for every 150 in 1926 and 1927."

Professor Gaiger then dealt with the economic aspect of tuberculosis, pointing out the losses it occasions the agricultural community, remarking that it does not pay to have to feed the tubercle bacillus as well as the cows. " Every tuberculous bovine is a potential and very often an actual source of infection for other bovines. The milk infects calves, as it does children, but many tuberculous cattle not only pass tubercle bacilli in their milk but pass them out in the dung on to the floor of the byre or cough them out on the wall or manger in front of them, and so infect other cows in the byre. The dung of quite healthy-looking cattle can be shewn to be infective for pigs by experiment. Some of these were known to have been passing tubercle bacilli in their dung for three years without shewing any symptoms of ill-health. Estimates of the monetary loss from a disease of this nature must necessarily be open to considerable error, but it has been estimated that Britain's loss amounts to one million pounds annually."

He proceeded to deal with the causal organism and its habits, and described in detail how it is possible to differentiate between the bovine, human and avian types of tubercle bacillus, and how, owing to these means of differentiation, one is able to say with certainty whether neck gland infections and abdominal gland infections in children are due to drinking tuberculous cows' milk or infection with the human type from a human source, and concluded this portion of his address with the remark " it can no longer be held open to the slightest doubt that cattle affected with tuberculosis are a serious menace not only to the cattle industry itself but to the health of the human community and especially to young children."

The speaker pointed out the means by which infection in cattle occurs and the routes by which the tubercle bacillus leaves the body of the infected animal, remarking on the common popular fallacy that it is only in actual udder infection in cows that tubercle bacilli are present in the milk, whereas the truth is that even animals whose only sign of tuberculosis is a reaction to tuberculin may also be spreaders of infection from tubercle bacilli passing out in the dung, and so gaining access to the milk or by actually passing out in the milk itself.

He pointed out the powers of resistance of the tubercle bacillus outside the body, and emphasised the need for disinfection measures in any attempts at eradication.

" We must keep ever before us the salient fact that the cause of the prevalence of bovine tuberculosis is the continued presence in our herds of infective animals. We cannot bottle up infection in them ; they will always, in greater or less degree, give off infection for others. The infected animal is the only factory for the manufacture of infection, since the bacillus cannot multiply (speaking generally) under the conditions it finds outside the body in nature."

Finally, Professor Gaiger dealt with preventive measures against tuberculosis. " To eradicate the disease from our farms we must work along certain definite lines which are already well recognised for contagious diseases :—

1. We must be able to detect affected animals, not only those obviously clinically affected, but those showing no outward symptom. We have this means of detection in the diagnostic agent known as tuberculin.
2. Having detected, we must either isolate the diseased or slaughter them.
3. Having got rid of the affected animals, we must disinfect infected premises thoroughly to kill remaining infection.
4. Failing the means of isolation or the practicability of slaughter, we must try to find some effective means of immunisation to enable animals to be reared with impunity in infected surroundings, thereby denying the bacillus the power to continue its existence for want of susceptible animals.

" If we are looking for any method which will be 100 % effective we are doomed to disappointment. Tuberculin comes very near that ideal ; isolation has been found, as in the case of Bang's method of control, to fail in practice ; slaughter of say 50 % of the cows of the country would be prohibitive on account of the cost, and immunisation by the attractive B.C.G. method is at present only at the stage of being distinctly encouraging.

" Few who are engaged in working the Tuberculosis Order do more than claim that it must be doing *some* good. The authorities themselves do not regard it as an eradication measure. How can it be ? It is like trying to weed a garden by rooting up the weeds after they have seeded themselves all round.

" There would seem to be considerable room for tightening up of the precautions taken to prevent re-infection of certified herds. Anything in the nature of slackness in certification, merely to encourage the farmers to feel it is not too difficult a matter to establish a certified herd, must be fatal to the whole scheme.

" The view that I believe is held pretty generally throughout the veterinary profession, and one with which I am in full agreement, is that this whole problem can only be tackled effectively by the creation of an efficient veterinary health service, the united efforts of whole-time and part-time men upon a definite detailed plan. No milk producer should be allowed to sell milk without a licence, and licences should only be granted after veterinary inspection of the herd. Regular veterinary inspection of all dairy herds should be the rule. I am satisfied that systematic veterinary examination, aided by intelligent laboratory observations as to the presence or otherwise of tubercle bacilli in milk and discharges, is a first step which cannot be dispensed with. When such a system has been in vogue some years we should then be in a better position to establish tubercle-free herds by tuberculin testing and slaughter, leading in due course to the establishment of tubercle-free areas of ever-widening extent till linked up. Such a system would fail unless guided and helped by a strong central authority. The campaign would cost the country money, but everything does which is worth while doing, and money would seem to be much more usefully spent in this way than on some schemes in other

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connections which one knows of. I feel certain that the success of a tuberculosis campaign will have a strict relationship to the use which is made of the veterinary profession in the campaign and the supply of funds provided for it. It may be said that I am merely advocating jobs for my own profession. Criticism of that kind is unworthy when we are faced with the menace I have described. Tuberculosis is a veterinary problem, and as such must be tackled by those whose training specially fits them for the work; and tackled it will have to be sooner or later. Every year's delay adds to the expense of the work awaiting us.

"Finally, a word about vaccination with the object of producing immunity. The subject is too large to go into in detail now, but it may be stated that B.C.G. Vaccine is the most hopeful of all the various methods which have been tried since Von Behring, in 1902, showed that calves could be immunised with living human tubercle bacilli. B.C.G. is a living tubercle bacillus deprived of its power of multiplying and producing lesions in the body. Over 100,000 new-born children have been treated with this vaccine in France without ill-effect, so it may be accepted as established that the vaccine is without danger. It will be some years before the value of the vaccine can be satisfactorily assessed, since the procedure in its use had to be altered, and the majority of those vaccinated up til quite recently have not been done according to the method now known to be necessary if success is to be expected. It was first thought that immunity was conferred immediately after vaccination, and that in consequence no isolation of the new-born vaccinated calves was necessary. This was hailed with pleasure, since the routine of the farm would not be in any way interfered with. Failures were the result, simply because the calves became infected on the premises after vaccination and before immunity became established. The most recent research shows that it is unsafe to suppose immunity has been conferred by the vaccine till after the twentieth day following vaccination. This means that the vaccinated calves must be isolated for a month, during which time they must be fed on boiled milk or the milk of tubercle-free cows. The use of the vaccine therefore entails a month of strict precautions, but even if successful only under these conditions, the vaccine is a great advance. Years must pass before judgment can be pronounced."

Professor Gaiger's address was illustrated by a number of lantern slides.

Mastitis.

Dr. F. C. Minett, of the Research Institute in Animal Pathology at the Royal Veterinary College, London, spoke on the subject of mastitis in bovine animals. With regard to the cause of the disease, it was necessary to clear up certain misconceptions. The disease was invariably due to the multiplication within the mammary gland of certain species of bacteria, and could not result directly from chills or injuries. The micro-organism which was chiefly responsible for mastitis among lactating animals was a streptococcus. So-called "summer mastitis," on the other hand, was generally due to an entirely different organism known as *Bacterium pyogenes*. This form derived its name from the fact that it occurred during the hot season of the year (July, August and September), at which time it was particularly prevalent among dry cows at pasture. Bacteria other than the two types mentioned could be regarded as occasional causes. Streptococcic mastitis was of great importance to the dairying industry for several reasons. Not only was the condition extremely widespread and the cause of serious diminution of milk yield and of the market value of the cow, but also there were logical grounds for believing it to be contagious and spread by the hands of the milker. With a view to controlling the disease, therefore, the stockowner would be well advised to enforce clean methods of milking and to ensure that animals which had at any time shewn any sign of udder disturbance should be milked last. It would be found that many of the other cows would fall into the latter category. Unfortunately, it was often difficult to make the owner and his herdsmen realise that preventive

(*Continued at foot of next column.*)

Royal College of Veterinary Surgeons.

Special Meeting of Council.

At a special meeting of Council R.C.V.S. held at the College, 10 Red Lion Square, W.C.1, on Wednesday, 24th April, 1929, there were present Professor J. B. Buxton, Professor F. T. G. Hobday, Messrs. W. S. King, G. H. Livesey, J. W. McIntosh, Major-Gen. Sir John Moore, Dr. A. Leslie Sheather, Mr. E. Alfred West, Professor G. H. Wooldridge and Lieut.-Col. T. Dunlop Young.

In the absence of the President and Vice-Presidents, Professor J. B. Buxton was appointed to the chair.

The minutes of the previous special meeting were read and signed as correct.

Apologies for absence were received from Major J. Abson, Dr. O. Charnock Bradley, Lieut.-Col. J. W. Brittlebank, Messrs. J. H. Carter, J. Clarkson, J. C. Coleman, Professor S. H. Gaiger, Mr. A. Gofton, J. Holroyd, R. Hughes, G. H. Locke, G. P. Male, Dr. J. T. Share-Jones, Lieut.-Col. P. J. Simpson, Messrs. S. H. Slocock, Trevor F. Spencer and Dr. A. W. Whitehouse.

Confirmation of Bye-Laws.

On the motion of the Chairman, it was resolved that the following alterations to Bye-laws, passed at a previous special meeting of Council held on 12th April, 1929, be confirmed:—

Bye-law 73. In place of the words "each paper" in line 4, insert "the paper in Surgery and Obstetrics" and after the word "attempted" in line 5 insert "and the paper in Medicine and Meat Inspection shall consist of eight questions in Medicine and two in Meat Inspection, of which seven only (including one or both from Meat Inspection section) are to be attempted."

Bye-law 107. To omit "a centre (or centres) of Veterinary teaching," and to insert in lieu thereof the words "one centre."

Bye-law 108. To insert in place of the words "shall be" in the last line, the following words—"in both groups shall be five guineas and for re-examination in one group."

To add to this Bye-law "On the award of the Diploma, every successful candidate shall pay a registration fee of two guineas."

Bye-law 110. To omit the first two paragraphs and insert in lieu thereof the following:—

"A panel of Examiners shall be elected for a period not exceeding three years, from whom the Examiners for any particular examination shall be chosen by the President.

In Group I. there shall be two Examiners, and in Group II. three Examiners, but in no case shall a teacher of a subject act as Examiner of his own students."

It was resolved—that the Common Seal be authorised to be attached to the Bye-laws as altered.

(*Continued from previous column.*)

measures of any sort were necessary. The owner might be aware that certain of his cows sometimes give milk which contained clots and that occasionally a cow lost a quarter, but he would not accept these incidents as proof of the presence amongst his stock of an insidious disease.

Our knowledge regarding summer mastitis was far from complete. It was usually supposed that infection was spread by means of flies and some support was given to this view by the observation that cases are more liable to appear among cows turned out in wet, low-lying meadows where the propagation of flies is favoured. Measures designed to diminish attacks by flies had deen recommended as a means of reducing disease incidence.

DIVISIONAL REPORT.

Derbyshire Division N.V.M.A.*

A meeting of the Derbyshire Division N.V.M.A. was held in the County Agricultural Institute, St. Mary's Gate, Derby, on Tuesday, 16th April, 1929. There were present Major T. V. Bagshaw (President), Captain O. V. Gunning (Secretary), Messrs. A. Levie, W. J. Ironside, E. Wilkinson, J. McArthur, G. Howe, and as *Visitors*, Mr. H. Newton, Colonel F. Lowe, Mr. J. R. Bond (County Agricultural Organiser for Derbyshire), Mr. G. W. Brindley (Poultry Instructor for Derbyshire), and Mr. W. H. Rowlands (Advisory Bacteriologist, Midland College).

Letters of regret at inability to attend were received for Messrs. P. Abson, H. S. Cockburn, J. C. Deville, E. Marrison and H. W. Steele Bodger.

The minutes of the previous meeting were taken as read and, having been approved, were signed by the Chairman.

Mr. G. Howe was appointed as a delegate to the Congress of the Royal Sanitary Institute, at Sheffield in July.

The PRESIDENT stated that there was an interesting item on the agenda regarding bacillary white diarrhœa in poultry and before calling upon Mr. Levie to read his paper, he asked Mr. Brindley to give a demonstration of the method of taking a blood sample from a bird suspected to be a carrier of the disease. After the demonstration had been given, Mr. Levie was called upon to give his paper, entitled "Mortality in Chickens," which is reproduced, together with the ensuing discussion, earlier in this issue of the *Record*.

During the course of the meeting tea was served.

At the conclusion of the discussion, the PRESIDENT proposed a hearty vote of thanks to all who had so generously contributed to the success of the meeting—in particular, to Mr. Levie for his most interesting paper and demonstration. This was not the first time that Mr. Levie had filled the breach at short notice. The President also specified Mr. Bond, for kindly opening the discussion. He particularly wished, on behalf of the members, to thank Mr. Bond for placing the Agricultural Institute at the disposal of the Division, for which courtesy they were most grateful. A vote of thanks was also accorded to Mr. Brindley for his demonstration of his method of taking a blood sample from a bird.

Mr. HOWE seconded these proposals which were carried with acclamation.

Mr. LEVIE, in replying, said that, as the President had told them, he had had very short notice in which to prepare his paper and they must therefore excuse its somewhat scrappy nature. His sole aim was to stimulate the interest of members of the Division in poultry diseases. If he had achieved that, he had been well rewarded.

O. V. GUNNING, *Hon. Secretary.*

* Received on April 22nd.

Statistics from the Bureau of Public Health Service in Washington, U.S.A., show a marked decline in the prevalence of human tuberculosis during the past ten years. Unquestionably, the slaughtering of a large number of tuberculous cows which have been supplying milk for the public has been an important factor in this decline. *The Producer.*

Victoria Veterinary Benevolent Fund.

MEETING OF COUNCIL.

A meeting of the Council of the Fund was held at 10 Red Lion Square, London, W.C., on Wednesday, April 24th, 1929, when the following members were present:—Mr. F. L. Gooch, Mr. J. W. McIntosh, Major-General Sir John Moore, Mr. E. Alfred West, Mr. J. Willett and Professor G. H. Wooldridge.

Apologies for absence were received from the President, who was unavoidably engaged elsewhere, Messrs. Slocock, Simpson, Inglis, Howard, W. Jackson Young, Townsend and Standley.

In the absence of the President, Mr. J. W. McIntosh was elected to the Chair.

The minutes of the previous meeting were taken as read and signed as correct.

Correspondence.—(1) From Mr. Warwick Fowle, asking the Council to accept the sum of £105 to be invested in the name of the Fund, on the condition that an annual grant of £5 be paid to Miss A. R. Nelson, a blind person, during her lifetime, and after her death the income from the investment to be used for the general purposes of the Fund.

It was resolved that the donation be accepted with gratitude on the conditions stated.

(2) From the Local Secretary of the N.V.M.A. Conference to be held at Ayr, announcing the intention of holding an amateur theatrical performance during the Conference, in aid of the Fund.

It was resolved that the grateful thanks of the Council be conveyed to the Local Committee at Ayr for their very kind offer.

SECRETARY'S REPORT.

The Secretary submitted the following Report:—

Since the date of the previous Quarterly Meeting the following new subscriptions and donations have been received:—

New Subscriptions.

	£	s.	d.
P. A. Carroll (per P. J. Howard)	0	10	6
J. E. Fitzgerald ,, ...	1	1	0
A. D. Neary ,, ...	0	10	6
T. R. Mulcahy ,, ...	1	1	0
M. McDonagh ,, ...	0	10	6
J. J. Condon ,, ...	0	10	6
J. H. Parkinson ,, ...	0	10	6
T. O'Leary ,, ...	0	10	6
W. K. Townson	1	1	0
J. Lyon	0	10	0
South-Eastern V.M.A. ... (increase)	1	1	0
	£7	17	0

Donations.

	£	s.	d.
Sir John M'Fadyean	100	0	0
Warwick Fowle	105	0	0
Mrs. Peele (Whist Drive)	21	10	0
Midland Counties' V.M.A.	5	0	0
South-Eastern Counties' V.S.	5	5	0

	£	s.	d.
Central V.M.A. (Collecting Box)	3	9	9
North Wales V.M.A. „	0	15	0
Veterinary Research Club (Collecting Box)	0	14	3
	£241	14	0

It was resolved that the grateful thanks of the Council be conveyed to the generous donors, and to Mr. P. J. Howard for his assistance in securing new members.

The draft Annual Report was submitted and considered and it was resolved that the draft be approved for issue to the members prior to the Annual General Meeting.

CASES.

No. 89, widow, aged 54, two children, one earning 30s. weekly. No other income.

It was resolved that the grant of £1 a week be continued for the present quarter, but that further enquiries be made with a view to reconsideration at the next meeting of Council.

No. 115, member, aged 63, out of employment. A satisfactory report of the professional work done by this member was received from a member who had given him temporary employment and it was resolved that the Executive Committee be authorised to pay him a grant of £1 a week until such time as he can obtain employment, and that the N.V.M.A. be requested to assist in the matter by allowing the insertion of an advertisement on behalf of this member.

No. 72, member's wife. Member unable to follow his profession Three children, of whom two are married but are unable to assist the mother. One daughter earning 5s. a week.

It was resolved that the grant of 15s. a week be continued for the present quarter.

No. 90, widow, aged 29, two children under 10 years of age. Total income 47s. 6d. a week.

It was resolved that the grant of 15s. be continued till the end of the present quarter, after which it be reduced to 10s. a week.

No. 104, widow, aged 47, no income. Has late husband's mother to maintain.

It was resolved that the grant of 20s. a week be continued.

No. 131, widow, aged 57, one daughter aged 16, earning 15s. a week. Other income 10s. a week from needlework.

It was resolved that a grant of 10s. a week be made.

Wortley Axe Fund.—The Treasurer reported a further investment of accumulated interest in this Fund, thereby bringing the nominal total up to £2,850 3½ per cent. Conversion Loan. The action of the Treasurer was approved.

Death of Mr. A. M. Munro.—The Secretary reported the death of Mr. A. M. Munro, a member of the Council and a very generous helper of the Fund. It was thereupon resolved that the Secretary be instructed to convey to Mrs. Munro the sympathy of the Council with her in her bereavement and their grateful appreciation of the practical interest which Mr. Munro always took in the Fund and of the generous contributions he had made to it.

Veterinary Inspection in Wiltshire.

At a recent meeting of the Wiltshire Agricultural Committee a discussion took place on a proposal to employ a whole-time veterinary surgeon for the county, instead of the present system of employing part-time officials upon the fee-paying principle.

The question of the appointment of a full-time veterinary surgeon for the county apparently came from the Finance Committee, which passed a resolution last January asking the Agricultural Committee and the Public Health Committee to consider and report upon the question. A joint meeting of the Joint Milk Sub-Committee, consisting of representatives of the Pubic Health and Housing, the Agricultural and General Purposes Committees had had the project under consideration, and resolved to request the County Medical Officer to prepare, for the consideration of the sub-committee, a scheme for the appointment of such whole-time veterinary surgeon.

Having read the resolution, as it reached the Agricultural Committee from the Finance Committee, the Chairman said he did not know what members thought about it. Personally, he would rather like to have the views of the members of the Diseases of Animals sub-committee, who were at present employing a large number of veterinary surgeons—whether any of those should be dispensed with in favour of the employment of a whole-time official. Returns which were given in connection with the Public Health Committee showed that a very large sum was spent in fees: almost as much as a permanent salary would cost, and it was a matter for serious consideration whether it would not be more economical, so far as the County was concerned, to have a whole-time official.

The County Treasurer: Under the Diseases of Animals sub-Committee, including the administration of the Tuberculosis Order, we have paid in the year just ended—on the 29th March—£1,175 in fees to 13 or 14 veterinary surgeons. We have paid out on the milk and dairy side of the work, the public health side, £350. Those figures were approximate. The latter work, he went on, showed a greater tendency to grow in volume than did the other. The former class of work was falling off a little, because of the Tuberculosis Order. The county were not paying so much in relation to tuberculosis and other diseases in animals as they were three years ago. They last year paid £857 in fees under that Order; in 1927 they paid £857 in fees under that Order; in 1926 they paid £1,262. It was difficult to compare the fees under the two heads, because those under the Milk and Dairies (Consolidation) Act were not quite the same as those paid under the Diseases of Animals Act.

The Chairman: We are pay ng a very large amount of money in the county—I hope you will realise that fact—in veterinary surgeons' fees and travelling allowances. If we can do it at a cheaper rate, it is for us to consider it. I have an open mind about it, but paying by fees is very often an extravagant way of getting work done.

Mr. Pond: Would the travelling expenses be higher or lower?

The Treasurer was understood to reply that in that connection travelling allowances would hardly be worth bothering about. If they had a permanent whole-time man the travelling expenses would not be far short of what they were now.

Captain Brown said it all came to some £2,000 a year, which the county was paying now. Probably one veterinary surgeon would be unable to do it all.

The Chairman: We should have to have one or two part-time men, if the suggested whole-time official did not have an assistant. The fact is that more than one market sometimes fails on the same day, and one could not be in two places at the same time. We should have to do away with having the smaller markets inspected, or have more than one official. I believe in some counties they have only the principal markets inspected, but I believe in Wiltshire we have a veterinary surgeon at all the markets. That is a matter entirely for consideration.

Mr. Warren asked if the great point in the employment of one full-time officer was that it would mean uniformity of inspection. If they had more than one man in the same capacity they would not have uniform inspection or uniform reports, and the great point in combining the work under one officer was to get that uniformity.

Another difficulty with regard to the present system was pointed out by another member. There was, he said, a great deal of dissatisfaction in the county that veterinary surgeons with private practices should have public work. That had been brought to his notice recently, and he thought it would be better for the county that they should have a whole-time officer.

The Chairman said that was a point which would have to be considered. He suggested that the matter should be adjourned till the next meeting. In the meantime they would receive the report which the Medical Officer of Health was asked to prepare, which could be considered by the Joint Milk sub-Committee and the Diseases of Animals sub-Committee before the next meeting.

The Chairman's suggestion was adopted, and the question therefore stands adjourned.

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Aug. 31st to Sept. 6th.—N.V.M.A. Congress at Ayr.

May 27th.—Meeting of the Editorial Committee, N.V.M.A., 10 Gray's Inn Square, W.C., 4-30 p.m.

„ 30th.—R.C.V.S. Council Election—last day for receipt of Voting Papers.

June 6th.—R.C.V.S. Annual General Meeting, to be followed by Annual General Meeting of the Victoria Veterinary Benevolent Fund.

„ 6th.—Annual General Meeting of the Scottish Society of Veterinary Inspectors, at the Glasgow Veterinary College, at 2-30 p.m.

„ 14th.—R.A.V.C. Annual Dinner.

„ 17th.—D.V.S.M. Examination commences in Edinburgh.

July 3rd.—R.C.V.S. Annual Dinner.

„ 4th.—R.C.V.S. Committee Meetings.

„ 5th.—R.C.V.S. Council Meeting.

„ 9th.—R.C.V.S. Written Examinations.

„ 11th.—R.C.V.S. Oral Examinations begin.

University of Edinburgh Department of Zoology.

"Opened by Prince George on May 15th, the new Department of Zoology of the University of Edinburgh, King's Buildings, West Mains Road, designed by Sir Robert Lorimer, A.R.A., and Mr. John F. Matthew as partners, looks like what it is in fact—a scientific workshop," says *The Times*. "Standing in a commanding position on the slope of Blackford Hill, below the Observatory, it proclaims itself at a glance as a building in which something is done which needs plenty of light, and it has, in addition, the slightly mysterious—if not sinister—character which is associated with the word 'scientific.' These characters are enough to establish its merits as a piece of architecture, and it is found to be as well designed for practical purposes as it is for looks."

A Parliament of Health.

The preliminary programme of the Fortieth Congress of The Royal Sanitary Institute, which is to be held at Sheffield from July 13th to 20th, has now been issued, and Mr. J. R. Hayhurst gave particulars in our columns on May 11th, of the work before the Veterinary Hygiene Section. The President of the Congress, the Right Hon. Earl Fitzwilliam, K.C.V.O., C.B.E., D.S.O., will deliver the Inaugural Address on Monday, July 15th. Sir Allan Powell, C.B.E., Chairman of the Food Council, will deliver the Lecture to the Congress on "Some Aspects of the Food Problem," and Professor W. W. Jameson, M.A., M.D., D.P.H., will deliver the Popular Lecture.

Delegates, numbering 750, have been appointed by 430 authorities. Among the Foreign and Dominion Governments, etc., to be represented are:—Commonwealth of Australia, South Australia, Tasmania, Perth; Bombay Government, Bombay Municipality, Calcutta, Karachi, North-West Frontier Province and United Provinces (India); Capetown, Johannesburg, Port Elizabeth; Nova Scotia; Irish Free State, Cork, Kildare C.C., National University of Ireland; States of Jersey; Egypt; Denmark; Copenhagen; United States of America; Johns Hopkins University (Baltimore), Rockefeller Institute for Medical Research (New York); Panama Republic; Dominican Republic; and Port-of-Spain (Trinidad).

In addition to those to which Mr. Hayhurst referred, the following are among the subjects arranged for discussion:—Mental Hygiene of the Child and of the Adult; Maternity and Child Welfare Services, the Local Government Act and how it will affect these Services; Cremation; Health Education; National Health Insurance Services; Hospital and Convalescent Treatment and after-care; Food Hygiene; Industrial Welfare; Smoke Abatement; Housing and Regional Planning; Rivers Pollution; Refuse Disposal; Main Drainage; Water Supply.

The Right Hon. the Lord Mayor of Sheffield (Alderman Harry Bolton, J.P.) is the Chairman of the Local Committee, and the Town Clerk (Sir William Hart, O.B.E.) and the Medical Officer of Health (Professor F. E. Wynne, M.B., D.P.H.), Joint Hon. Local Secretaries.

Heavy Horse Grants.

A request for increased grants from the Ministry to Heavy Horse Societies has been put forward by the Shire Horse Society, and, although rebuffed by a statement that increases cannot be considered for the present season, the Society is determined to press for immediate improvements in the grants.

At present a direct grant not exceeding £40 is given by the Ministry, and the assisted nomination grant may not exceed £40. This is the figure that has prevailed since 1914, and the Council think the time has come for an increase to at least £60 per stallion. Stabling and keep have increased, together with other expenses, and societies are not in a position to pay the hiring fees current in 1914, when the grants were fixed. The average hiring fee in 1927 was £211, against £231 in 1914.

Administration of Turpentine to Stallions.

Turpentine is one of, if not the best of, all intestinal antiseptics and especially so in equine practice. It has held its place in the treatment of colics in the horse for many years by many of the leading veterinarians of the United States and Canada. In my practice, I have found it indispensable. I have, however, had some sad experiences with it. With one-ounce doses I have produced acute nephritis in a stallion three years of age. Yet, I have given three times the amount to geldings and mares with no bad results.

I have talked with other veterinarians, who have had the same bad results when administering medium doses to stallions. My advice is to never give a stallion turpentine. —B. J. Riley, in *Veterinary Medicine, Chicago.*

Boot Trade and the Warble Fly.

"Throughout Wales and Monmouthshire," writes a correspondent to the *Farmer and Stockbreeder* of May 13th, "Parliamentary candidates are being asked by the local Boot Trades' Associations whether they will support legislation for compulsory treatment of animals suffering from the ravages of the warble fly on the same lines as legislation for treatment of sheep scab. It is pointed out in the questionnaire that the financial loss to every section of the leather industry, from the cattle breeder right down to the smallest worker in leather, also every person wearing leather goods, amounts to at least one million pounds yearly.

"From a humane standpoint, adds the questionnaire, the animals suffering from this pest are often driven mad, their offspring are weak and their milk is poor.

"The English Boot Trades' Federation have been asked to arrange with its associations to send a similar questionnaire to English Parliamentary candidates."

Live Stock Exports.

"One encouraging feature of our live stock export trade has been the increased volume of business done in horses," says the *North British Agriculturist*. "Figures were recently issued in reference to the first quarter of the year, which showed that the export of horses in that period were notably satisfactory, the total being 2,873, at an average value of £112 0s. 10d., a figure which had not been reached since 1919. The export trade in cattle during the first quarter of the year was not so satisfactory. Nor will there be a full return to prosperous business in this line until we get absolutely clear of foot-and-mouth disease, the ever-recurring cases of which have tied up several overseas countries against Britain. Argentine got a very small number of cattle during the first quarter of the year, but it is satisfactory to know that there were considerable exports last month to various countries, notably Canada, which has been taking a big toll of Ayrshire cattle, to mention only one of our breeds. Sheep, on the other hand, have been figuring well in our export trade. The average value for the first quarter of the year was the best since 1922, the total for that period being 266, at an average of £23 4s. 6d., compared with an average of £21 3s. 1d. for 311 head exported last year. The pig export trade has been rather dull. This is quite explainable in view of the fact that there has been a very satisfactory home trade in recent months."

Mares in foal do not tolerate medicinal doses of oil of chenopodium, according to observations made by the Veterinary Corps of the United States Army. The irritation of the intestinal mucosa caused by oil of chenopodium is lasting. A healthy cat killed by Whipple for autopsy two weeks after receiving a medicinal dose, still showed pronounced patches of inflammation in the cardia and intestines, and although recovering from the effect, had lost one-half of its total body weight.

According to de Area Teco, a specific intradermal reaction occurs in actinomycotically-infected animals when products of actinomyces cultures are injected into the skin. This reaction will be of considerable value in the diagnosis of cases in which the infection occurs in internal organs.—*Exp. Station Record.*

Cysticercus ecchinococcus is said to infest practically every ruminant in Morocco. The dog and the jackal are the usual hosts of the adult parasite.—Robert, in *Jour. of Trop. Med.* Vol. 16, No. 3.

Probably the greatest fault of medicine, veterinary and human, is the prevailing idea that the discussion of ordinary things of every day concern to the practitioner are too common or vulgar to print in journals or bring up before the associations.—*Vet. Medicine.*

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents.

The Smythe Test for Tuberculosis.

To the Editor of The Veterinary Record.

Sir,—I think the infra-orbital test for tuberculosis, as introduced by Mr. Smythe, of Camborne, is deserving of considerable attention. The easy technique, together with the prompt and definite local reaction given by infected animals, are distinct and valuable features.

I have recently tested a number of animals by the combined intra-dermal and infra-orbital methods, using both the Cambridge and Pasteur Tuberculins. Whatever doubt one may have had in interpreting the intra-dermal reaction, the other seems clear and definite. It is a better combination than the intra-dermal and ophthalmic.

To assess this test and give it its proper status, a larger experience is required—since official recognition can only come after enquiry by experts duly appointed by the proper authorities. I may be unduly optimistic, but at present I am inclined to think "The Smythe Test" will ultimately play a leading part in any scheme for tuberculosis eradication.—I am, Sir, Yours truly, F. T. Harvey.

Penmellyn,
St. Columb, Cornwall.
May 15th, 1929.

R.C.V.S. Elections.

To the Members of the Veterinary Profession.

Gentlemen,—Having served for a number of years as a member of Council of both the National Veterinary Medical Association and of the Central Veterinary Society. I have obtained a valuable insight into the needs not only of the general practitioner, but of those veterinary surgeons who are engaged in Colonial, Army, Agricultural and other appointments.

Great advances have been made in recent years in the enhancement of the status, remuneration, conditions of service and general recognition of our profession, but much remains to be achieved.

It has many times of late been said that new and younger blood is needed on our Council, and, I venture to add that new and progressive ideas, as well as energy, enthusiasm and an ability regularly to attend meetings, are attributes to be sought for in a candidate.

If elected, I shall do everything in my power to further the interests of each branch of the profession; and, moreover, I venture to assert that there never was a more opportune moment for progressive effort.

Yours faithfully, Hamilton Kirk.

"Croyland,"
Finchley Road, N.W.11.
May 19th, 1929.

"Proprietary Remedies."

To the Editor of The Veterinary Record

Sir,—There is one aspect of the matter of the prescribing of proprietary remedies which is worth a moment's consideration, namely, that of cost. I have made a few calculations and I find that the majority of these articles are very expensive when compared with the ordinary B.P. drugs. A well-known proprietary ointment costs 5s. 6d. per pound, whereas a similar B.P. article can be bought for eighteenpence. Again, a certain cough remedy which is very popular costs approximately sixpence an ounce; the active principle of this can be prescribed in another form at a much lower cost.

The matter of cost is one reason why I do not use these things. Another is that I prefer simplicity in prescribing. It is extraordinary how small the drug bill can become if care and knowledge is made use of in prescribing. My drug bill works out at one pound for every 100 cases.

Yours truly, Bernard Gorton.

22 Arnewood Road, Bournemouth.
May 19th, 1929.